

STIC SEARCH RESULTS

Biotech-Chem Library

Questions about the scope or the results of the search? Contact the searcher or contact:

Mary Hale, Information Branch Supervisor 308-4258, CM1-1E01

/ 0	luntary Results Feedback Form
>	I am an examiner in Workgroup: Example: 1610
>	Relevant prior art found, search results used as follows:
	☐ 102 rejection
	☐ 103 rejection
	☐ Cited as being of interest.
	☐ Helped examiner better understand the invention.
	Helped examiner better understand the state of the art in their technology.
	Types of relevant prior art found:
	☐ Foreign Patent(s)
	 Non-Patent Literature (journal articles, conference proceedings, new product announcements etc.)
>	Relevant prior art not found:
	Results verified the lack of relevant prior art (helped determine patentability).
	Results were not useful in determining patentability or understanding the invention
100	nments:

。Drop/off-or/send/completed/forms/to/ST/IC/Biotech-Chem≀Library/GM1,⊫Circ-/Desk





STIC Search Report Biotech-Chem Library

STIC Database Tracking Number: 97246

TO: Nita M Minnifield

Location: 1/8a07 & 8e12

Art Unit: 1645

Tuesday, June 24, 2003

Case Serial Number: 002784

From: Edward Hart

Location: Biotech-Chem Library

CM1-6B02

Phone: 305-9203

edward.hart@uspto.gov

Search Notes

Examiner Minnifield,

Here are the results of the search you requested.

Please feel free to contact me if you have any questions.

Edward Hart



STIC-Biotech/ChemLib

From: Sent:

Chan, Christina

Monday, June 23, 2003 1:16 PM

To: Subject: Minnifield, Nita; STIC-Biotech/ChemLib RE: rush sequence search

Please rush. Thanks Chris

Chris Chan TC 1600 New Hire Training Coordinator and SPE 1644 308-3973 CM-1, 9B19

> ----Original Message----From: Minnifield, Nita

Sent: Monday, June 23, 2003 12:47 PM Chan, Christina

rush sequence search Subject:

Christina, please approve, 2 month amdt.

STIC

10/002784

Please do a commercial database search on SEQ ID NO: 16 and 27.

Please a provide paper copy of the results.

Thanks, Nita M. Minnifield Art Unit 1645 Office CM1-8A07 Mailbox CM1-8E12 703-305-3394

Edward Hart Technica, Info. Specialist STIC/Biotech CMI 6B02 Tel: 305-9203

6/03/03 ABSSOL 2-AA

WEST Search History

DATE: Tuesday, June 24, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB = USPT, B	PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ	r .	
L11	15 and pyrogenic adj5 exotoxin	18	L11
L10	L5 and pyrogenic	18	L10
L9	17 and altered adj10 antigen receptor	4	L9
L8	L7 and altered adj10 class II	4	L8
L7	15 and streptococc\$	77	L7
L6	L5 and streptococc?	13	L6
L5	bacterial adj5 superantigen	197	L5
L4	L3 and superantigen	3	L4
L3	11 or L2	29	L3
L2	ulrich-robert-g.in.	3	L2
L1	ulrich-robert.in.	26	L1

END OF SEARCH HISTORY

Charles !

Generate Collection

Print

Search Results - Record(s) 1 through 4 of 4 returned.

1. Document ID: US 20030036644 A1

L8: Entry 1 of 4

File: PGPB

Feb 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030036644

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030036644 A1

TITLE: Bacterial superantigen vaccines

PUBLICATION-DATE: February 20, 2003

INVENTOR-INFORMATION:

NAME

CITY

STATE

COUNTRY

RULE-47

Ulrich, Robert G.

Frederick

MD

US

US-CL-CURRENT: 536/23.1; 536/23.7

Full | Title | Citation | Front | Review | Classification | Date | Reterence | Sequences | Attachments | Claims | 17465 | True: Desc | Image

2. Document ID: US 20030009015 A1

L8: Entry 2 of 4

File: PGPB

Jan 9, 2003

PGPUB-DOCUMENT-NUMBER: 20030009015

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030009015 A1

TITLE: BACTERIAL SUPERANTIGEN VACCINES

PUBLICATION-DATE: January 9, 2003

INVENTOR-INFORMATION:

CITY NAME

STATE COUNTRY RULE-47

ULRICH, ROBERT G.

FREDERICK

MD US

OLSON, MARK A.

GAITHERSBURG

MD

BAVARI, SINA

DILLSBURG

PA

US US

US-CL-CURRENT: 536/23.1; 424/184.1, 435/320.1

Fig. Title Citation Front Review Classification thate Refletence Sequences Attachments

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3. Document ID: US 6399332 B1

L8: Entry 3 of 4

File: USPT

Jun 4, 2002

US-PAT-NO: 6399332

DOCUMENT-IDENTIFIER: US 6399332 B1

TITLE: Bacterial superantigen vaccines

DATE-ISSUED: June 4, 2002

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Ulrich; Robert G. Frederick MD
Olson; Mark A. Gaithersburg MD
Bavari; Sina Dillsburg PA

US-CL-CURRENT: 435/69.3; 435/252.3, 435/252.33, 435/320.1, 435/325, 435/69.1, 435/71.1, 435/71.3, 536/23.1, 536/23.7

Foll Tibe Citation Front Review Classication Date Reference Sequences Attachinests

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4. Document ID: JP 2002522055 W WO 200009154 A1 AU 9889049 A EP 1105154 A1

L8: Entry 4 of 4

File: DWPI

Jul 23, 2002

DERWENT-ACC-NO: 2000-224177

DERWENT-WEEK: 200263

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TITLE: Nucleic acid encoding superantigen toxin useful as a vaccine and for

diagnosis of superantigen-associated bacterial infections

INVENTOR: BAVARI, S; OLSON, M A ; ULRICH, R G

PRIORITY-DATA: 1998WO-US16766 (August 13, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 2002522055 W	July 23, 2002		103	C12N015/09
WO 200009154 A1	February 24, 2000	E	118	A61K039/00
AU 9889049 A	March 6, 2000		000	A61K039/00
EP 1105154 A1	June 13, 2001	E	000	A61K039/00.

INT-CL (IPC): A61 K 39/00; A61 K 39/02; A61 K 39/085; A61 K 39/09; A61 K 39/04; A61 K 39/085; A61 K 39/09; A61 K 39/04; A61 P 31/00; A61 P 35/00; A61 P 37/04; C07 K 14/00; C07 K 14/31; C12 N 1/20; C12 N 1/21; C12 N 15/00; C12 N 15/09; C12 N 15/63; C12 P 21/00; C12 P 21/02; G01 N 33/53; G01 N 33/569

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Search Results - Record(s) 1 through 18 of 18 returned.

☐ 1. Document ID: US 20030092894 A1

L11: Entry 1 of 18

File: PGPB

May 15, 2003

PGPUB-DOCUMENT-NUMBER: 20030092894

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030092894 A1

TITLE: Modified chimeric superantigens and their use

PUBLICATION-DATE: May 15, 2003

INVENTOR-INFORMATION:

RULE-47 COUNTRY CITY STATE NAME Lund Antonsson, Per SE Helsingborg Bjork, Per SE Lund Dohlsten, Mikael ΙT Arese Kalland, Terje Lund Hansson, Johan SE Lund Forsberg, Goran SE Bromma Abrahmsen, Lars

US-CL-CURRENT: <u>530/388.1</u>; <u>435/7.23</u>, <u>530/388.8</u>

Full | Title | Citation | Front | Feview | Classification | Date | Reternoon | Sequences | Attachments |

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2. Document ID: US 20030036644 A1

L11: Entry 2 of 18

File: PGPB

Feb 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030036644

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030036644 A1

TITLE: Bacterial superantigen vaccines

PUBLICATION-DATE: February 20, 2003

INVENTOR-INFORMATION:

NAME CITY STATE COUNTRY RULE-47

Ulrich, Robert G. Frederick MD US

US-CL-CURRENT: 536/23.1; 536/23.7

Fig. | Title | Cdation | First | Review | Classification | Date | Reference | Sequences | Attochments

PMC Cow Desc Image:

3. Document ID: US 20030009015 A1

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Record List Display

L11: Entry 3 of 18

File: PGPB

Jan 9, 2003

PGPUB-DOCUMENT-NUMBER: 20030009015

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030009015 A1

TITLE: BACTERIAL SUPERANTIGEN VACCINES

PUBLICATION-DATE: January 9, 2003

INVENTOR-INFORMATION:

CITY STATE COUNTRY RULE-47 NAME

ULRICH, ROBERT G. OLSON, MARK A.

MD US FREDERICK US MD GAITHERSBURG US

BAVARI, SINA

PA DILLSBURG

US-CL-CURRENT: 536/23.1; 424/184.1, 435/320.1

Full | Title | Chabon | Fruot | Sexious | Classification | Date | Reference | Sequences | Affactioneds |

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4. Document ID: US 20020197234 A1

L11: Entry 4 of 18

File: PGPB

Dec 26, 2002

PGPUB-DOCUMENT-NUMBER: 20020197234

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020197234 A1

TITLE: Immunologic activities of rhesus cytomegalovirus encoded IL-10 and human

3. 4

cytomegalovirus encoded IL-10

PUBLICATION-DATE: December 26, 2002

INVENTOR-INFORMATION:

COUNTRY CITY STATE NAME

Schall, Thomas J. Penfold, Mark

CA US Menlo Park US Mountain View CA

Spencer, Juliet

CA US Foster City

US-CL-CURRENT: 424/85.2; 424/93.7, 435/372

Full | Fills | Citation | Front | Sexicul Classification | Date | Reference | Sequences | Attachments |

(MMC Praw Desc Image)

5. Document ID: US 6514498 B1

L11: Entry 5 of 18

File: USPT

Feb 4, 2003

US-PAT-NO: 6514498

DOCUMENT-IDENTIFIER: US 6514498 B1

TITLE: Modified/chimeric superantigens and their use

DATE-ISSUED: February 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Antonsson; Per	Lund			SE
Bjork; Per	Helsingborg			SE
Dohlsten; Mikael	Lund			SE
Hansson; Johan	Lund			SE
Forsberg; Goran	Lund			SE
Abrahmsen; Lars	Bromma			SE
Kalland; Terje	Arese			IT

US-CL-CURRENT: $\underline{424}/\underline{178.1}$; $\underline{424}/\underline{182.1}$, $\underline{424}/\underline{184.1}$, $\underline{424}/\underline{185.1}$, $\underline{424}/\underline{190.1}$, $\underline{424}/\underline{192.1}$, 424/194.1

Full Title Colation Front Seview Christination Date Reference Sequences Attachments

6. Document ID: US 6447777 B1

L11: Entry 6 of 18

File: USPT

STATE & ZIP CODE

Sep 10, 2002

COUNTRY

US-PAT-NO: 6447777

DOCUMENT-IDENTIFIER: US 6447777 B1

TITLE: Polymerized staphylococcal protein a for treatment of diseases

DATE-ISSUED: September 10, 2002

INVENTOR-INFORMATION:

CITY ALL THE NAME

Terman; David Stephen Pebble Beach

FLReiser; Raoul F. Sarasota

US-CL-CURRENT: $\underline{424}/\underline{184.1}$; $\underline{424}/\underline{236.1}$, $\underline{424}/\underline{237.1}$, $\underline{424}/\underline{243.1}$, $\underline{424}/\underline{280.1}$, $\underline{514}/\underline{12}$,

514/18, 530/350, 530/387.1

Full Title Edition Front Review Claranication trate Reference Sequences Attachments ModC | Brain Dezic | Image |

7. Document ID: US 6399332 B1

File: USPT Jun 4, 2002 L11: Entry 7 of 18

US-PAT-NO: 6399332

DOCUMENT-IDENTIFIER: US 6399332 B1

TITLE: Bacterial superantigen vaccines

DATE-ISSUED: June 4, 2002

INVENTOR-INFORMATION:

COUNTRY NAME CITY STATE ZIP CODE

Ulrich; Robert G. Frederick MD Olson; Mark A. .Gaithersburg MD Bavari; Sina Dillsburg PA

US-CL-CURRENT: 435/69.3; 435/252.3, 435/252.33, 435/320.1, 435/325, 435/69.1, 435/71.1, 435/71.3, 536/23.1, 536/23.7

Full 1 Title | Citation | Front | Review | Classification | Date | Reterence | Sequences | Attachments |

3. Document ID: US 6340461 B1

L11: Entry 8 of 18

File: USPT

Jan 22, 2002

US-PAT-NO: 6340461

DOCUMENT-IDENTIFIER: US 6340461 B1

TITLE: Superantigen based methods and compositions for treatment of diseases

DATE-ISSUED: January 22, 2002

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE COUNTRY

Terman; David Stephen

Pebble Beach

CA

93953

US-CL-CURRENT: 424/193.1; 424/192.1, 424/194.1, 424/277.1, 424/278.1, 424/280.1, 424/282.1, 435/68.1, 435/69.1, 435/69.3, 435/69.7

Full Title Chation Front Review Classification Date Reference Sequences Affaichments

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9. Document ID: US 6338845 B1

L11: Entry 9 of 18

File: USPT

Jan 15, 2002

US-PAT-NO: 6338845

DOCUMENT-IDENTIFIER: US 6338845 B1

TITLE: Tumor killing effects of enterotoxins, superantigens, and related compounds

DATE-ISSUED: January 15, 2002

INVENTOR-INFORMATION:

CITY

STATE

ZIP CODE

COUNTRY

Terman; David S.

Pebble Beach

CA

93953

US-CL-CURRENT: 424/93.1; 424/93.2, 424/93.21, 424/93.7, 424/93.71, 435/372, $435/372.1, \ 435/\overline{372.2}, \ 435/\overline{372.3}$

Full Title Caston Front Review Classmoston Date Frencience Sequences Attachments 2000 Priso Dero Limbge

10. Document ID: US 6251385 B1

L11: Entry 10 of 18

File: USPT

Jun 26, 2001

US-PAT-NO: 6251385

DOCUMENT-IDENTIFIER: US 6251385 B1

TITLE: Method of cancer treatment

DATE-ISSUED: June 26, 2001

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Terman; David S.

Pebble Beach

CA 93953

US-CL-CURRENT: 424/93.7; 424/184.1, 424/236.1, 424/237.1, 424/277.1, 424/93.1, 424/93.2, 424/93.71, 435/325

Full | Utile | Citation | Front | Review | Classification | Date | Reference | Sequences | Attrichments |

2000 Praw bero torage

11. Document ID: US 6221351 B1

L11: Entry 11 of 18

File: USPT

Apr 24, 2001

US-PAT-NO: 6221351

DOCUMENT-IDENTIFIER: US 6221351 B1

TITLE: Tumor killing effects of enterotoxins, superantigens, and related compounds

DATE-ISSUED: April 24, 2001

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Terman; David S.

Pebble Beach

CA 93953

US-CL-CURRENT: 424/93.71; 424/93.1, 424/93.2, 424/93.21, 424/93.7, 435/69.3, 514/44,

530/395

Full | 1012 | Calabino | Front | Revision | Classification | Date | Reference | Seguences | Attachments | 1995 | 1996 | Draw Desc | Intops

12. Document ID: US 6126945 A

L11: Entry 12 of 18

File: USPT

Oct 3, 2000

US-PAT-NO: 6126945

DOCUMENT-IDENTIFIER: US 6126945 A

TITLE: Tumor killing effects of enterotoxins, superantigens, and related compounds

DATE-ISSUED: October 3, 2000

INVENTOR - INFORMATION:

NAME

CITY

STATE

ZIP CODE COUNTRY

Terman; David S.

Pebble Beach

CA

Stone; Jay L.

Aptos

CA

US-CL-CURRENT: $\underline{424}/\underline{237.1}$; $\underline{424}/\underline{236.1}$, $\underline{424}/\underline{243.1}$, $\underline{424}/\underline{244.1}$, $\underline{435}/\underline{69.1}$, $\underline{435}/\underline{69.3}$, 514/12, 514/8

Full Table Chatton Front | Feview Classication | Date Reservoir | Sequences | Attachments |

Store Stand Descriptionage

13. Document ID: US 6075119 A

L11: Entry 13 of 18

File: USPT

Jun 13, 2000

US-PAT-NO: 6075119

DOCUMENT-IDENTIFIER: US 6075119 A

TITLE: Peptides useful for reducing symptoms of toxic shock syndrome

DATE-ISSUED: June 13, 2000

INVENTOR-INFORMATION:

STATE ZIP CODE COUNTRY CITY TN

Bannan; Jason D.

Thompson Station

Zabriskie; John B.

New York

NY

US-CL-CURRENT: $\underline{530/300}$; $\underline{424/130.1}$, $\underline{424/185.1}$, $\underline{424/192.1}$, $\underline{424/243.1}$, $\underline{424/244.1}$, 530/324, 530/325, 530/326, 530/327, 530/328, 530/333, 530/350

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Full Title | Citation | Front | Review | Classication | Date | Reference | Sequences | Affectments |

14. Document ID: US 5872233 A

L11: Entry 14 of 18

File: USPT

UT

Feb 16, 1999

Aug 18, 1998

US-PAT-NO: 5872233

DOCUMENT-IDENTIFIER: US 5872233 A

TITLE: Mycoplasma arthritidis T-cell mitogen

DATE-ISSUED: February 16, 1999

INVENTOR-INFORMATION:

STATE ZIP CODE COUNTRY CITY NAME .

Cole; Barry C. Atkin; Curtis L.

Sandy Salt Lake City UT

Oliphant; Arnold R.

Johnston

Pole; Ann

Salt Lake City UT

US-CL-CURRENT: 536/23.7; 435/69.1, 436/86, 530/300, 530/324, 530/350, 536/22.1, <u>536/23.1</u>, <u>536/25.3</u>

Full Title Citation Front Fleview Classification Date Reference Sequences Attachments

15. Document ID: US 5795974 A

L11: Entry 15 of 18 File: USPT

US-PAT-NO: 5795974

DOCUMENT-IDENTIFIER: US 5795974 A

TITLE: Mycoplasma arthritidis superantigen

DATE-ISSUED: August 18, 1998

INVENTOR-INFORMATION:

ZIP CODE COUNTRY NAME CITY STATE

Cole; Barry C. Sandy UT Atkin; Curtis L. Holladay UT· UT

Knudtson; Kevin L. Salt Lake City

US-CL-CURRENT: 536/23.7; 435/5, 435/7.2

Full Title Cuation Front Review Classification Date Reference Sequences Attochments

FMAC Prior Desc Image:

16. Document ID: US 5728388 A

L11: Entry 16 of 18

File: USPT

Mar 17, 1998

US-PAT-NO: 5728388

DOCUMENT-IDENTIFIER: US 5728388 A

TITLE: Method of cancer treatment

DATE-ISSUED: March 17, 1998

INVENTOR-INFORMATION:

NAME CI

CITY STATE ZIP CODE COUNTRY

Terman; David S. Pebble Beach CA 93953

US-CL-CURRENT: <u>424/237.1</u>; <u>424/236.1</u>

Full Title Castion Front Review Classification Cate Reference Sequences Attachments - Knill Draw tiese Image:

17. Document ID: US 5639869 A

L11: Entry 17 of 18

File: USPT

Jun 17, 1997

Sep 10, 2002

US-PAT-NO: 5639869

DOCUMENT-IDENTIFIER: US 5639869 A

TITLE: Mycoplasma arthritidis T-cell mitogen

DATE-ISSUED: June 17, 1997

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Cole; Barry C. Sandy UT
Atkin; Curtis L. Salt Lake City UT
Oliphant; Arnold R. Johnston IA
Pole; Ann Salt Lake City UT

US-CL-CURRENT: 536/23.7; 424/264.1, 530/326, 530/350, 530/825

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18. Document ID: US 6447777 B1 WO 9736614 A1 AU 9724293 A

Ll1: Entry 18 of 18 File: DWPI

DERWENT-ACC-NO: 1997-549326

DERWENT-WEEK: 200263

COPYRIGHT 2003 DERWENT INFORMATION LTD

TITLE: Use of crosslinked Staphylococcal protein A - for treating auto-immune

diseases, transplant rejection neoplastic diseases or infectious disease such as HIV

infection

INVENTOR: REISER, R F; TERMAN, D S

PRIORITY-DATA: 1996US-024802P (March 29, 1996), 1997US-0828951 (March 28, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 6447777 B1	September 10, 2002		000	A61K039/02
WO 9736614 A1	October 9, 1997	Е	100	A61K039/09
AU 9724293 A	October 22, 1997		. 000	A61K039/09

INT-CL (IPC): A61 K 38/00; A61 K 39/02; A61 K 39/02; A61 K 39/04; A61 K 39/04; A61 K 39/085; A61 K 39/09; A61 K 45/00; A61 K 47/04; C07 K 1/00; C07 K 14/24; C07 K 14/315; C07 K 14/35; C07 K 17/02; C07 K 17/06; C07 K 17/14

Folt Title	Citation Fr	ont Reniem	Clasorication :	Date Reference	Sequences	Attachments	E200CC	Inam Desc	1003

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Term	Documents
PYROGENIC	7502
PYROGENICS	13
EXOTOXIN	4369
EXOTOXINS	847
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Query
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1994_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1994_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1995_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1996_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA20000_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2001_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2001_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2001_DAT:
/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2002_DAT:
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
/SIDS2/gcgdata/geneseqy-emb1/AA1986.DAT:*
/SIDS2/gcgdata/geneseqy-emb1/AA1987.DAT:*
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AAW12097
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41.1	41.1	41.1	41.1	41.1	41.2	41.2	41.3	41.4	41.5	41.8		Ν.		<u>ب</u>	42.4	٧.	2	2	42.8					44.5							97.5	•	•	98.2
239	239	239	239	239	238	238	238	239	265	266	266	239	266	239	239	239	240	239	266	266	239	266	239	255	221	221	221	221	251	251	250	251	251	251
23	22	20	14	12	22	14	23	20	21	23	21	21	23	14	12	23	21	23	21	23	22	21	19	18	23	14	12	22	19	19	18	18	18	18
ABB76238	AAB67342	AAY06251	AAR45015	AAR13207	AAB67343	AAR45016	ABB76239	AAY06254	AAY70104	ABB79507 ·	AAY70108	AAY70106	ABB79504	AAR45014	AAR13206	ABB76237	AAY54465	ABB79505	AAY54464	ABB79503	AAB67341	AAY92319	AAW64647	AAW06737	ABB76240	AAR45017	AAR13209	4	AAW59781	AAW59798 .	AAW12145	AAW12149	5	AAW12152
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ALIGNMENTS

Superantigen toxin; SAg; Streptococcal pyrogenic exotoxin A; SPE-A; antibacterial; vaccine; MHC class II receptor; T-cell antigen recep cytostatic; antibody; staphylococcal/streptococcal toxin; toxoid; S WPI; 2000-224177/19. N-PSDB; AAZ51112. Streptococcus sp. diagnosis; treatment; superantigen-associated Streptococcal pyrogenic exotoxin A (SPE-A) Ulrich 13-AUG-1998; WO200009154-A1 05-JUN-2000 AAY70109; AAY70109 standard; Protein; 251 AA (REED-) REED ARMY INST RES WALTER. 13-AUG-1998; 24-FEB-2000. RG, Olson MA, (first entry) 98WO-US16766 98WO-US16766 Bavari S;

gen receptor; toxoid; SPEA42;

Nucleic acid encoding superantigen toxin useful as a vaccine and for

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RESULT 2
ABB79508
ID ABB8
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AC ABB1
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AC ABB7
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WPI;
                                                                                                                                                                                 01-SEP-1998;
                                                                                                                                                                                                                                                                                                                                            Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                      Exotoxin A; attenuation;
                                                                                       (USSA)
                                                                                                                                    25-JUN-1997;
                                                                                                                                                                                                                              04-JUN-2002
                                                                                                                                                                                                                                                                            US6399332-B1
                                                                                                                                                                                                                                                                                                                      Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptococcal pyrogenic exotoxin A vaccine SPEa42.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-SEP-2002
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  2002-546281/58
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                                          RG,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KYLTDNKQLYINGPSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIYKDNETLDSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       THENVKSVDQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               THENVKSVDQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
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                                          Olson MA,
                                                                                                                                                                                                                                                                                                                                                                                                                SPEa;
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llarity 100.0%;
Conservative (
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                                                                                                                                                                                                                                                                                                                                                                                                         SPEa42; superantigen; antigen; toxin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entry)
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                                             Bavari
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Pred. No. 4.5
0; Mismatches
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1.5e-111;
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                                                                                                                                                                                                                                                                                                                                                                                                            vaccine;
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                                                                                                                                                                                                                                                                                                                                                                                                                                 The present sequence is the protein sequence of Streptococcus pyogenes vaccine SPEA42. The vaccine differs from the native SPEACC sequence by substitution of the Leu-42 residue by Arg. This sequence by substitution of the Leu-42 residue by Arg. This mutation is expected to disrupt contact between the toxin and the recombinant protein in Escherichia coll as a secreted protein or as a cytoplasmic product. No indicators of toxicity have been detected for the purified recombinant protein, and vaccine studies demonstrate that SPEA42 is highly antigento, inducing protective immunity in a mouse animal model. The attenuated superantigen can be used to protect against superantigen toxin infections. Methods of producing and using altered superantigen toxins as vaccines, and in diagnosis and therapy, are provided by the invention. A multivalent vaccine consisting of altered superantigen toxins from SEA, SEB, SEC-1, TSST-1 and SPEA is predicted to provide protective immunity against the majority of bacterial superantigen toxins.
                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local s
Matches 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novel isolated and purified superantigen toxin DNA fragment which has been genetically altered, useful for producing vaccine for treatment of superantigen toxin-associated bacterial diseases
                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB; ABN84229
                               241
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                 TSQIEVYLTTK
                                                             KYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIYKDNETLDSN
                                                                                                                               ENAERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMYTAQELDYKVR
                                                                                                                                                                                                                    THENVKSYDQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
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TSQIEVYLTTK
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                                                                                                                                                                                                                                                                     MENNKKYLKKMYFFYLYTFLGLTISQEVFAQQDPDPSQLHRSSLYKNLQNIYFLYEGDPV
                                                                                                                                                                                                                                                                                                                                                                                                        251 AA;
                                                                                                                                                                                                                                                                                                                                     Conservative
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                                                                                                                                                                                                                                                                                                                                                     100.0%;
 251
                               251
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                                                                                                                                                                                                                                                                                                                                     Score 1322; DB 23;
Pred. No. 4.5e-111;
); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                       Indels
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vaccine; protection; treatment; cancer; neutralising antibody; streptococcal toxic shock syndrome; STSS; symptom; amelioration fever; hypotension; group A streptococcal infection; myositis; fascitis; liver damage; T cell; lymphoma; ovarian; uterine.
                                                                                                                                        Streptococcus
            Peptidė
                                                                                                                                                                04-NOV-1997
                                                                                                                                                                                                              AAW12097
                                              Streptococcus
                                                                                                                                                                                                             standard; Protein;
                                                                                                                                                               (first entry)
                                              pyogenes
                                                                                                                                         pyogenes Streptococcal toxin
/label= sig_peptide
                       Location/Qualifiers
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symptom; amelioration; infection; myositis;

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RESULT 3 AAW12097

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RESULT 4
AAW59780
ID AAW5
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AC AAW5
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AC 12-C
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                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                 The present sequence is Streptococcus pyogenes Streptococcal toxin A (SPE-A), from which a non-lethal mutant SPE-A, comprising at least I amino acid change, can be derived. The mutant SPE-A can be used to produce vaccines to protect animals against wild type SPE-A and to treat cancer and streptococcal toxic shock syndrome (STSS), The mutant SPE-A causes neutralising antibodies (Ab) to be produced, which may be used to ameliorate STSS symptoms, e.g. fever, hypotension, group A streptococcal infection, myositis, administered in conjunction with antibodic therapy. The mutant SPE-A is especially useful for treating T cell lymphomas, and covarian and uterine cancer. It is thought that mutant SPE-A can be selectively toxic to T cell lymphoma celis.
                                                                                                                                                                                                                                                                                                                                     Matches 249;
                                                                                                                                                                                                                                                                                                                                                          Query Match
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N-PSDB; AAW12097.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mutant SPE-A toxin with at least one amino acid change substantially non-lethal - used in vaccine composition
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; Pages 77-79; 102pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   treatment of
                                                                                                                                                                                                                                                                                                                                                                                 Sequence
            12-OCT-1998
                                  AAW59780
                                                      AAW59780 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                  241
                                                                                                                                                        181
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                                                                                                                                                                                                                                                         61 THENVKSVDQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
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                                                                                                                                                                                                                                                                                                               μ
                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                        TSQIEVYLTTK 251
                                                                                                                                                       KYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIYKDNETLDSN 240
                                                                                                                                                                                                    ENAERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVR
                                                                                                                                                                                                                ENAERSACIYGGVTNHEGNHLEIPKKIYVKVSIDGIQSLSFDIETNKKMYTAQELDYKVR 180
                                                                                                            TSQIEVYLTTK
                                                                                                                                                                                                                                                                                                                                                                                  251 AA;
                                                                                                                                                                                                                                                                                                                                      Conservative
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            (first entry)
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99.2%;
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                                                                                                                                                                                                                                                                                                                                        Score 1308; DB 18;
Pred. No. 8.3e-110;
0; Mismatches 2;
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                                                                                                                                                                                                                                                                                                                                                               251;
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                                                                                                                                                                                                                                                                                                                                           Sequence
                 AAW12154 standard; Protein; 251
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                                                                        TSQIEVYLTTK
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SPE-A toxin; nonlethal; mutant; Streptococcus pyogenes exotoxin A; wild type; nontoxic; antibody; vaccine; immunity; ovarian cancer; streptococcal toxic shock syndrome; STSS; T cell lymphoma;
                                                                                                                                                                                                                                                                                                                                                                           This is the amino acid sequence of the Streptococcus pyogenes exotoxin A (SPE-A toxin). The novel mutant Streptococcal SPE-A toxin has at least 1 aa change and is nonlethal compared with a protein to wild type SPE-A toxin. The mutant SPE-A toxins are nontoxic and can produce antibodies that neutralise wild type SPE-A toxin activity. The toxins can be used in vaccines and therapeutics to generate a protective immune response against streptococcal infection. They can be used to protect against the development of streptococcal toxic shock syndrome (STSS). In addition, the toxins can be used for treating animals with symptoms of streptococcal infection or STSS and in methods for stimulating T cell proliferation and in the treatment of cancer. In particular they can be used for treating T cell lymphomas, and ovarian and uterine cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Amino acid sequence of Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New mutant Streptococcal SPE-A toxins - or treatment of streptococcal infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; Fig 3; 95pp;
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                                                                                                                                                                                 61 THENVKSYDQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
                                                                                                                                                                                                                                                 1 MENNKKYLKKMYFFYLYTFLGLTISOEVFAQODPDPSQLHRSSLYKNLQNIYFLYEGDPY
                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                   THENVKSVDQLLSHHLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
                                                                                                                                                                                                                             TSQIEVYLTTK 251
                                                                                                                                                                                                                                                                                                                                                        251
                                                                                                                                                                                                                                                                                           Conservative
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                                                                                                                                                                                                                                                                                           Score 1308; DB 19;
Pred. No. 8.3e-110;
0; Mismatches 2;
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                                                                                                                                                                                                                                                                                              Indels
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                                                                                                                                                                                                                                                                                                                            251;
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Streptococcal toxin A (SPE-A) mutant, which can be used to produce
C vaccines to protect animals against wild type SPE-A and to treat
C cancer and streptococcal toxic shock syndrome (STSS). The mutant
C may be used to ameliorate STSS symptoms, e.g. fever, hypotension,
C canege. The neutralising antibodies (Ab) to be produced, which
C damage. The neutralising Ab is preferably administered in
C conjunction with antibiotic therapy. The mutant SPE-A is
c specially useful for treating T cell lymphomas, and ovarian and
C uterine cancer. It is thought that mutant SPE-A can be selectively
toxic to T cell lymphoma cells.
C N.B. Sequence not given in the specification, but constructed
vxx
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Best Local 9
                                                                                                                                                Matches
                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mutant SPE-A toxin with at least one amino acid change is substantially non-lethal - used in vaccine composition for treatment of cancer and streptococcal toxic shock syndrome etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                Example 4; Page -; 102pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1997-099936/09
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (MINU ) UNIV MINNESOTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19-DEC-1996
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121 ENAERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVR
                                                               13
                                                                                                                                                al Similarity
248; Conserv
                           THENVKSVDQLLSHHLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
                                           THENVKSVDQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
                                                                               251 AA;
                                                                                                                                              Conservative
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                                                                                                                                                           98.7%;
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                                                                                                                                       Score 1305; DB 18;
pred. No. 1.5e-109;
1; Mismatches 2;
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infection; myositis;
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                                                                                                                                                                    Length 251;
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N.B. Sequence not cusing the wild type

not given in the specification, type SPE-A sequence given on pa

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RESULT 6
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                The present sequence is a non-lethal Streptococcus pyogenes Streptococcal toxin A (SPE-A) mutant, which can be used to produce vaccines to protect animals against wild type SPE-A and to treat cancer and streptococcal toxic shock syndrome (STSS). The mutant SPE-A causes neutralising antibodies (Ab) to be produced, which may be used to ameliorate STSS symptoms, e.g. fever, hypotension, group A streptococcal infection, myositis, faccitis and liver damage. The neutralising Ab is preferably administered in conjunction with antibiotic therapy. The mutant SPE-A is especially useful for treating T cell lymphomas, and ovarian and uterine cancer. It is thought that mutant SPE-A can be selectively toxic to T cell lymphoma cells.
                                                                                                                                                                                                                              Mutant SPE-A toxin with at least one amino acid change is substantially non-lethal - used in vaccine composition for treatment of cancer and streptococcal toxic shock syndrome etc.
                                                                                                                                                                                                            Claim
                                                                                                                                                                                                                                                                                                                        Ohlendorf D,
                                                                                                                                                                                                                                                                                                                                                                               07-JUN-1995;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptococcal; toxin A; SPE-A; non-lethal; mutant;
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                                                                                                                                                                                                           5; Page -;
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187
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                                                                                                                                                                                                                                                                                                                    Schlievert PM,
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infection; myositis;
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                Mutant SPE-A toxin with at least one amino acid change is substantially non-lethal - used in vaccine composition from treatment of cancer and streptococcal toxic shock syndrom
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            vaccine; protection; treatment; cancer; neutralising antibody; streptococcal toxic shock syndrome; STSS; symptom; amelioration; fever; hypotension; group A streptococcal infection; myositis; fascitis; liver damage; T cell; lymphoma; ovarian; uterine.
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Streptococcal toxin A (SPE-A) mutant, which can be used to produce
C vaccines to protect animals against wild type SPE-A and to treat
C cancer and streptococcal toxic shock syndrome (STSS). The mutant
C SPE-A causes neutralising antibodies (Ab) to be produced, which
C may be used to ameliorate STSS symptoms, e.g. fever, hypotension,
C group A streptococcal infection, myositis, fascitis and liver
C damage. The neutralising Ab is preferably administered in
C conjunction with antibotic therapy. The mutant SPE-A is
C especially useful for treating T cell lymphomas, and ovarian and
C uterine cancer. It is thought that mutant SPE-A can be selectively
C N.B. Sequence not given in the specification, but constructed
C using the wild type SPE-A sequence given on pages 77-79.
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Matches
                                                                                                                                                                                                                                                                                                            Query Match
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TSQIEVYLTTK
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Streptococcal toxin A (SPE-A) mutant, which can be used to produce

vaccines to protect animals against wild type SPE-A and to treat

cancer and streptococcal toxic shock syndrome (STSS). The mutant

SPE-A causes neutralising antibodies (Ab) to be produced, which

cany be used to ameliorate STSS symptoms, e.g. fever, hypotension,

group A streptococcal infection, myositis, fascitis and liver

damage. The neutralising Ab is preferably administered in

conjunction with antibotic therapy. The mutant SPE-A is

especially useful for treating T cell lymphomas, and ovarian and

uterine cancer. It is thought that mutant SPE-A can be selectively

N.B. Sequence not given in the specification, but constructed

using the wild type SPE-A sequence given on pages 77-79.
                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local :
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         Streptococcal; toxin A; SPE-A; non-lethal; mutant; vaccine; protection; treatment; cancer; neutralish
                                                           04-NOV-1997
                                     Streptococcus pyogenes Streptococcal toxin A mutant N20D/K157E
 streptococcal
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                                                                                                                                                                                                                                                                                                                                                                                      Sequence
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         cancer; neutralising
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The present sequence is a non-lethal Streptococcus pyogenes
Streptococcal toxin A (SPE-A) mutant, which can be used to produce
vaccines to protect animals against wild type SPE-A and to treat
cancer and streptococcal toxic shock syndrome (STSS). The mutant
SPE-A causes neutralising antibodies (Ab) to be produced, which
may be used to ameliorate STSS symptoms, e.g. fever, hypotension,
group A streptococcal infection, myositis, fascitis and liver
damage. The neutralising Ab is preferably administered in
conjunction with antiblotic therapy. The mutant SPE-A is
especially useful for treating T cell lymphomas, and ovarian and
tuterine cancer. It is thought that mutant SPE-A can be selectively
toxic to T cell lymphoma cells.
Sequence not given in the specification, but constructed
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fascitis; liver damage; T cell; lymphoma; ovarian; uterine.
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31..251
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                                                                                                                                                                                                                                                                                                                    Score 1299; DB 18;
Pred. No. 5.4e-109;
2; Mismatches 2;
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RESULT 10
AAW12151
XX AAW12
XX AAW12
XX AAW12
XX AAW12
XX AAW12
XX AAW12
XX Strep
XX Strep
XXW fever
XXW fever
XXW Fasci
XXX Synth
XXX Key
FT Pepti
FT Pepti
FT Wisc
FT Wisc
YXX 19-Di
XXX 07-Ji
XX 
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                                                                                                                                       The present sequence is a non-lethal Streptococcus pyogenes
C Streptococcal toxin A (SPE-A) mutant, which can be used to produce
C vaccines to protect animals against wild type SPE-A and to treat
C cancer and streptococcal toxic shock syndrome (STSS). The mutant
C SPE-A causes neutralising antibodies (Ab) to be produced, which
C may be used to ameliorate STSS symptoms, e.g. fever, hypotension,
C group A streptococcal infection, myositis, fascitis and liver
C damage. The neutralising Ab is preferably administered in
C conjunction with antibiotic therapy. The mutant SPE-A is
C especially useful for treating T cell lymphomas, and ovarian and
C uterine cancer. It is thought that mutant SPE-A can be selectively
C toxic to T cell lymphoma cells.
CC N.B. Sequence not given in the specification, but constructed
CC using the wild type SPE-A sequence given on pages 77-79.
Query Match
Best Local Similarity
Matches 248; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptococcal; toxin A; SPE-A; non-lethal; mutant; production; vaccine; protection; treatment; cancer; neutralising antibody; streptococcal toxic shock syndrome; STSS; symptom; amelioration; fever; hypotension; group A streptococcal infection; myositis; fascitis; liver damage; T cell; lymphoma; ovarian; uterine.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mutant SPE-A toxin with at least substantially non-lethal - used
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                       Score 1298; DB 18;
Pred. No. 6.6e-109;
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RESULT 11
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ADW12152
AC ANM12
AC ANM12
AC ANM12
AX Strep
XX Fever
XX Fever
XX Fever
XX WO964
AN WO964
AN WO967
AN
The present sequence is a non-lethal Streptococcus pyogenes Streptococcal toxin A (SPE-A) mutant, which can be used to produce vaccines to protect animals against wild type SPE-A and to treat cancer and streptococcal toxic shock syndrome (STSS). The mutant SPE-A causes neutralising antibodies (Ab) to be produced, which
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N.B. Sequence not given in the specification, but construes in the wild type SPE-A sequence given on pages 77-79.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptococcal; toxin A; SPE-A; non-lethal; mutant; production; vaccine; protection; treatment; cancer; neutralising antibody; streptococcal toxic shock syndrome; STS; symptom; amelioration fever; hypotension; group A streptococcal infection; myositis; fascitis; liver damage; T cell; lymphoma; ovarian; uterine.
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                                              07-JUN-1995;
                                                                                           07-JUN-1996;
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illarity 98.8%;
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Pred. No. 6.6e
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infection; myositis;
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RESULT 13
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N.B. Sequence not given in the specification, but constructed using the wild type SPE-A sequence given on pages 77-79.
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Matches
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                                                                                                                                           Streptococcus
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                                                                                                                                                                                               AAW12149;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mutant SPE-A toxin with at least substantially non-lethal - used
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                           Synthetic
                                     Streptococcus
                                                                                                                 Streptococcal; toxin A; SPE-A; non-lethal; mutant;
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                                                                                                                                                                                                                                                                                                                                                                                                                                            standard;
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                                    pyogenes
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Location/Qualifiers
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in vaccine composition for
occal toxic shock syndrome
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                                                                           symptom; amelioration;
infection; myositis;
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Streptococcal toxin A (SPE-A) mutant, which can be used to produce
vaccines to protect animals against wild type SPE-A and to treat
cancer and streptococcal toxic shock syndrome (STSS). The mutant
SPE-A causes neutralising antibodies (Ab) to be produced, which
may be used to ameliorate STSS symptoms, e.g. fever, hypotension,
Group A streptococcal infection, myositis, fascitis and liver
damage. The neutralising Ab is preferably administered in
conjunction with antibiotic therapy. The mutant SPE-A is
especially useful for treating T cell lymphomas, and ovarian and
tespecially useful for the streptococcal
uterine cancer. It is thought that mutant SPE-A can be selectively
toxic to T cell lymphoma cells.

N.B. Sequence not given in the specification, but constructed
using the wild type SPE-A sequence given on pages 77-79.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
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247; Conserv
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                           TSQIEVYLTTK 251
                                                                                          KYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIYKDNETLDSN
                                                                                                                                                                                                                                                                                         THENVKSVDQLLSHHLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
                                                                                                                                                                                                                                                                                                               THENVKSVDQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  251 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
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128
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/label- sig_peptide
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97.8%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1293; DB 18;
Pred. No. 1.9e-108;
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RESULT 14 AAW12145

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ENAERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVR

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                                                      Matches
                                                                                Query Match
                                                                                                                                                           Streptococcal toxin A (SPE-A) mutant, which can be used to produce vaccines to protect animals against wild type SPE-A and to treat cancer and streptococcal toxic shock syndrome (STSS). The mutant SPE-A causes neutralising antibodies (Ab) to be produced, which may be used to ameliorate STSS symptoms, e.g. fever, hypotension, group A streptococcal infection, myositis, fascitis and liver damage. The neutralising Ab is preferably administered in conjunction with antibiotic therapy. The mutant SPE-A is especially useful for treating T cell lymphomas, and ovarian and uterine cancer. It is thought that mutant SPE-A can be selectively toxic to T cell lymphoma cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptococcal; toxin A; SPE-A; non-lethal; mutant; production; vaccine; protection; treatment; cancer; neutralising antibody; streptococcal toxic shock syndrome; STSS; symptom; amelioration; fever; hypotension; group A streptococcal infection; myositis; fascitis; liver damage; T cell; lymphoma; ovarian; uterine.
                                                                                                                                                                                                                                                                                                                                                                       Mutant SPE-A toxin with at least one amino acid change substantially non-lethal - used in vaccine composition treatment of cancer and streptococcal toxic shock syndrometers.
                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI;
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                                                                                                           Sequence
                                                                                                                                  N.B. Sequence not given in the specification, but using the wild type SPE-A sequence given on pages
                                                                                                                                                                                                                                                                                                                  The present sequence is a non-lethal Streptococcus pyogenes
                                                                                                                                                                                                                                                                                                                                             Claim 5; Page -; 102pp; English
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                                                                   Local
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250
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                                                                   97.5%;
98.8%;
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                                                     0
                                                                  Score 1288.5; DB 1
Pred. No. 4.7e-108;
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                                                                                DB 18;
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RESULT 15
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AC ANASS
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                                                                          produce antibodies that neutralise wild type SPE-A toxin activity. The toxins can be used in vaccines and therapeutics to generate a protective immune response against streptococcal infection. They can be used to protect against the development of streptococcal toxic shock syndrome (STSS). In addition, the toxins can be used for treating animals with symptoms of streptococcal infection or STSS and in methods for stimulating T cell proliferation and in the treatment of cancer. In particular they can be used for treating T cell proliferation and in the treatment of cancer. In
                                                                                                                                                                                                                                                                                               This is the amino acid sequence of the mutant Streptococcus pyogenes exotoxin A (SPE-A toxin). The novel mutant Streptococcal SPE-A toxin has at least 1 as change and is nonlethal compared with a protein to wild type SPE-A toxin. The mutant SPE-A toxins are nontoxic and can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note= "Optionally Ser, Ala, Gly, or Thr" Misc-difference 157
                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 4; Page -; 95pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
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     using information given
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New mutant Streptococcal SPE-A toxins - or treatment of streptococcal infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1998-333330/29.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Amino acid sequence of mutant Streptococcus pyogenes exotoxin A.
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                                                           uterine cancer.
                            sequence was not present in
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                                                                                                                                                                                                                                                                                                                                                                                                                                          English.
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                         the
                            specification
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Best Local Similarity 97.6
Matches 245; Conservative
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1 TSQIEVYLTTK 251
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                                                                                                                                                                                                                           THENVKSVDQLRSHDLIINVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC
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Pred. No. 5.3e-108;
0; Mismatches 6;
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Minimum DB
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Listing first 45 summaries
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                                                                                                                                                                                                                                         the number of results predicted by chance r than or equal to the score of the result ed by analysis of the total score distributes.
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980_DAT:
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912.449 Million cell updates/sec
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         Streptococcus pyog
S. pyogenes speB g
S. pyogenes cystei
Streptococcus poly
Streptococcus pyog
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AAW07898
 Domain
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                                                                                                                                                                                                                                                                                                                                                                                                                         AAW07898;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW07898 standard; Protein; 398
                            01-MAY-1995;
                                                          30-APR-1996;
                                                                                        07-NOV-1996
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238	238	238	239	265	266	266	266	239	239	239	239	266	240	239	266	266	255	239	239	251	251	251	251	251	251	251	251	251	250	251	251	251	251	221
22	14	23	20	21	23	21	23	21	23	14	12	21	21	23	23	21	18	22	19	19	19	18	18	18	18	18	18	18	18	18	18	19	18	23
AAB67343	AAR45016	ABB76239	AAY06254	AAY70104 .	ABB79507	AAY70108	ABB79504	AAY70106	ABB76237	AAR45014	AAR13206	AAY54464 ·	AAY54465	ABB79505	ABB79503	AAY92319	AAW06737	AAB67341	AAW64647	AAW59798	AAW59781	AAW12149	215	AAW12152	215	214	214	N	214	AAW12146	21	AAW59780	20	ABB76240
Staphylococcus aur	Staphylococcal ent	lococcus	Staphylococcal gro	Staphylococcal ent	Staphylococcal SEC	Staphylococcal ent	Staphylococcal ent	Mutant Staphylococ	Staphylococcus aur	Staphylococcal ent	yloco	acid seq	0	Staphylococcal ent		Plant-optimized mu	Staphylococcus ent	occus	etic S		a.						reptococcus		reptococcus		Streptococcus pyog	.റ	treptococcus p	Staphylococcus pyo

ALIGNMENTS

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(BAYU) BAYLOR COLLEGE MEDICINE. Misc-difference cell; human; treatment; carcinoma; sarcoma; melanoma; lymphoma; leukaemia; leukemia; blood; lung; mammary gland; prostate; intestine; stomach; liver; heart; skin; pancreas; brain tissue; wound covering; prevention; metastasis; identification; speB7. wound covering; Pre-pro; cysteine; protease; inhibition; neoplastic; proliferation; pyogenes 95US-0432692. 96WO-US05997. /note= "corresponding codon TAG"
333..338 Location/Qualifiers /label= nucleotide_binding_domain

(TEXA) UNIV TEXAS

SYSTEM

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RRESULT 2
AAAP59EG
ID AAAR5
XX AAR5
AC AAAR5
XX 30-C
DT 30-C
DT 30-C
XX Inmu
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Best Local :
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Immunogenic peptide; speB gene; extracellular protease; produ antibody; vaccine; diagnosis; detection; Streptococcus infect group A; prevention; treatment; pharyngitis; tonsilitis; skin infection; acute rheumatic fever; scarlet fever; probe; post-streptococcal glomerulonephritis; sepsis; meningitis; erysipelis; cellulitis; fasciitis; toxic shock like syndrome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     treatment of neoplastic conditions, e.g. carcinomas, saccomas, melanomas, lymphomas and leukaemias originating from blood, lung, mammary gland, prostate, intestine, stomach, liver, heart, skin, pancreas or brain tissue. The CP is especially associated with a wound covering, and can also be used to prevent metastasis or identify susceptible neoplastic cells.

K1735 and CM519 melanoma cells were injected s.c. into nu/nu mice optionally followed by i.p. injection of CP (100 microg, 24 hours later). The mice were checked twice weekly for tumour growth for completely protected athymic mice against transplanted K1735 melanoma growth, and protected 60% of the mice from developing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Use of extra
                                                                                                                                                             AAR95856;
                                                                                                                                 30-OCT-1996
                                                                                                                                                                                        AAR95856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present sequence is the Streptococcus pyogenes clone speB7 pre-pro cysteine protease (CP), which can be used to inhibit neoplastic cell proliferation, especially in a human, useful in the transfer of neoplastic conditions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The
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                                                                                                     pyogenes
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oro cvsteine protease (CP), which can
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   extracellular Streptococcal cysteine protease enzyme -ting the proliferation of neoplastic cells, e.g. for trooma, lymphoma or leukaemia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                                                         HVNWGWGGVSDGFFRLDALNPSALGTGGGAGGFNGYQSAVVG
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                                                                                                                                                                                                                                                                                                                                                                                                                              EKVKPGEQSFVGQHAATGCVATATAQIMKYHNYPNKGLKDYTYTLSSNNPYFNHPKNLFA
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                                                                                                     gene encoded
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                                                                                                                                                                                        Protein;
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Pred. No. 1.5e
5; Mismatches
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                                                         infection;
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                                                                                                                                                                                                                                                                         Matches
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Use of extracellular detection, diagnosis pathogenic organisms,
                                                                                                                                                                                                                                                                                                                            Sequence
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                                                               ENFGYNQSVHQINRSDFS-QDWEAQIDKELSQNQPVYYQG-GKVGGHAFVIDGADGRNFY
                                                                                                                      AISTRQYNWNNILPTYSGRESNVQKMAISELMADVGISVDMDYGPSSGSAGSSRVQRALK
                                                                                                                                                                        EKVKPGEQSFVGQHAATGCVATATAQIMKYHNYDNKGLKDYTYTLSSNNPYFNHPKNLFA
                                                                                                                                                                                                                              FTQSKYLMIYKDNETLDSNTQIEVYLTT---KQPVVKSLLDSKGIHYNQGNPYNLLTPVI 248
HVNWGWGGVSDGFFRLDALNPSALGTGGGAGGFNGYQSAVVG
                        HVNWGWGGVSDGFFRLDALNPSALGTGGGAGGFNGYQSAVVG
                                                                                                        AISTRQYNWNNILPTYSGRESNVQKMAISELMADVGISVDMDYGPSSGSAGSSRVQRALK
                                                                                                                                                             EKVKPGEQSFVGQHAATGCVATATAQIMKYHNYPNKGLKDYTYTLSSNNPYFNHPKNLFA
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llarity 91.5%;
Conservative
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216
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382..396
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                                                    NRSDFSKQDWEAQIDKELSQNQPVYYQGVGKVGGHAFVIDGADGRNFY
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398
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                                                                                                                                                                                                                                                                    Score 1327.5; I
Pred. No. 1.5e-9
5; Mismatches
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8;
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293 368 233

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                                                                                                                                                                                                                                                                                                                                                               This sequence represents the S. pyogenes cysteine protease speB7.

The invention relates to a method for determining the presence of a Group A Streptococcus which expresses an extracellular protease (preferably speB) capable of degrading proteins of the extracellular comprising a first member of a specific binding pair which binds to a second member of the binding pair to form a complex, where the first member has at least 1 epitopic site competitive with at least 1 conserved epitopic site on the protease; and (2) detecting complex formation as indicative of the presence of the pathogenic organism. The method is useful for screening host samples for evidence of infection with Streptococcus pyogenes and for monitoring the disease status of the host. The speB gene products are used as a vaccine for protecting against Streptococcus mediated diseases such as pharyngitis, tonsillitis, sellulitis, acute rheumatic fever, poststreptococcal glomerulonephritis, cellulitis, bacteraemia, and meningitis.
                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 258
                                                                                                                                                                                                                                                                                                                                Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Determining the presence of a protease capable of degrading using a specific antibody -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2000-205208/18.
N-PSDB; AAA07111.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cysteine protease; speB; Group A Streptococcus; extracellular protease; detection; diagnosis; extracellular matrix; infection; skin infection; disease status monitoring; vaccine; Streptococcus mediated disease; pharyngitis; tonsillitis; scarlet fever; sepsis; erysipelas; fascilitis; pneumonia; acute rheumatic fever; poststreptococcal glomerulonephritis;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-DEC-1993;
14-SEP-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S. pyogenes cysteine protease speB7 protein sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (BAYU ) BAYLOR COLLEGE MEDICINE
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       309
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                                                                                              249
                                                                                                                                            120
                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                             FTQSKYLMIYKDNETLDSNTQIEVYLTT----KQPVVKSLLDSKGIHYNQGNPYNLLTPVI
AISTRQYNWNNILPTYSGRESNVQKMAISELMADVGISVDMDYGPSSGSAGSSRVQRALK
                                                                      EKVKPGEQSFVGQHAATGCVATATAQ IMKYHNYDNKGLKDYTYTLSSNNPYFNHPKNLFA
                                                                                                                                     FMES-YVEQIKENKKLDT----TYAGTAEIKQPVVKSLLDSKGIHYNQGNPYNLLTPVI
                                              EKVKPGEQSFVGQHAATGCVATATAQIMKYHNYPNKGLKDYTYTLSSNNPYFNHPKNLFA
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                                                                                                                                                                                                                                                                                                                                398
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94US-0306542.
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                                                                                                                                                                                                                                                         Score 1327.5; DB Pred. No. 1.5e-99;
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                                                                                                                                                                                                                                   Mismatches
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PR 07-1
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                                                 streptococcus/GBS (Streptococcus agalactiae) or group A streptococcus/GAS (Streptococcus/GBS (Streptococcus/GAS), given in C (Streptococcus pyogenes), comprising one of 5483 sequences (S1), given in the specification. The proteins have antibacterial and antiinflammatory activity. (I), nucleic acids encoding (I), ABN6604-ABN71526 and antibodies that bind (I) are used in the manufacture of medicaments for the treatment or prevention of infection or disease caused by Streptococcus bacteria, particularly S. agalactiae and S. pyrogenes. Nucleic acids encoding (I) are used to detect Streptococcus in a composition comprising (I) or a nucleic acid encoding (I), may be used as a vaccine or diagnostic composition. The disease caused by Streptococcus that is prevented or treated may be meningitis. Nucleic acid encoding (I) may be used in gene therapy. Antibodies to (I) are used for affinity immunoassays, and distinguishing/identifying
                                                                                                                                                                                                                                                                                                                                                         The invention relates to a protein (ABP25413-ABP30895) from group B
                                                                                                                                                                                                                                                                                                                                                                                              Claim 1; Page 3948; 4525pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                    New Streptococcus protein for the treatment or prevention of infection or disease caused by Streptococcus bacteria, such as meningitis, and for detecting a compound that binds to the protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Telford J,
Tettelin H;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27-OCT-2000; 2000GB-0026333; 24-NOV-2000; 2000GB-0028727; 07-MAR-2001; 2001GB-0005640.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptococcus; GAS; GBS; group B streptococcus; Streptococcus agalactiae; group A streptococcus; Streptococcus pyogenes; antibacterial; antiinflammatory; infection; vaccine; meningitis; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-PSDB; ABN70210
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INST GENOMIC RES.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Masignani V,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2001WO-GB04789
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Best Local :
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  The present sequence is given in a specification relating to novel oral bacterial polypeptide referred to as periodontain. The polypeptide has amidolytic activity for cleavage of denatured polypeptides and non-denatured serpin polypeptides. It has amidolytic activity for cleavage of a non-denatured human alpha_i-proteinase inhibitor at a reactive site loop region of the inhibitor. Periodontain is useful for inhibiting the peptidase activity and reducing periodontitis, loss of tooth attachment and periodontal pocket formation, and for reducing
                                                                                                                                                                    WPI;
                                                                                                                                                                                                                      (UYGE-)
(TRAV/)
(POTE/)
                                                                                                                           Novel oral bacterial periodontain polypeptide for diseases, has amidolytic activity for cleavage of alphal-proteinase inhibitor at reactive site loop
                                                                                                                                                                                                                                                                                                                                                                         Streptococcus | antibacterial;
                                                                                              Example
                                                                                                                                                                                        Travis J,
                                                                                                                                                                                                                                                              21-APR-1999;
                                                                                                                                                                                                                                                                                  20-APR-2000;
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                                                                                                                                                                                                                                                                                                                          WO200063394-A2
                                                                                                                                                                                                                                                                                                                                             Streptococcus
                                                                                                                                                                                                                                                                                                                                                                gingivitis.
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TRAVIS J.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard;
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                                                                                                                           treating periodontal non-denatured human region of inhibitor
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                                                                                                                                                                                                                                                                                              SSSSSS
                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                   growth of bacteria, preferably P. gingivalis in vitro or in vivolti is useful for protecting an animal from a disease caused by P. gingivalis and for treating periodontal diseases, including gingivitis and periodontitis.
                                                                                                                                                                                                                                                                                              Sequence
                        427
                                                294
                                                                       369
                                                                                               234
                                                                                                                      309
                                                                                                                                               174
                                                                                                                                                                       249
                                                                                                                                                                                                                        192
 354
                                                                                                                                                                                               120
                                                                                                                                                                                                                                             al Similarity
237; Conserv
HVNMGWGGVSDGFFRLDALNPSALGTGGGAGGFNGYQSAVVG
                                                                                             AISTROYNWNNILPTYSGRESNVQKMAISELMADVGISVDMDYGPSSGSAGSSRVQRALK 368
                                               EKVKPGEQSFVGQHAATGCVATATAQIMKYHNYPNKGLKDYTYTLSSNNPYFNHPKNLFA
                                                                                                                                                                                              FMES-YVEQIKENKKLDT----TYAGTAEIKQPXVKSLLDSKGIHYNQGNPYNLLTPXX
                                                                                                                                                                                                           FTQSKYLMIYKDNETLDSNTQIEVYLTT---KQPVVKSLLDSKGIHYNQGNPYNLLTPVI 248
                                                                       ENFGYNQSVHQINRSD-FSQDWEAQIDKELSQNQPVYYQG-GKVGGHAFVIDGADGRNFY
                                                                                                                                               EKVKPGEQSFVGQHAATGCVATATAQIMKYHNXPNKGLKXYTYTLSSNNPYFNHPKNLXX
                                                                                                                                                                                                                                                                                              398 AA;
                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                          47.8%;
84.0%;
                                                                                                                                                                                                                                            Score 1195.5;
Pred. No. 8.2e
5; Mismatches
                                                                                                                                                                                                                                                          .2e-89;
                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                29;
                                                                                                                                                                                                                                                Indels
                         468
                                                                                                                                                                                                                                                                    Length
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                                                                        426
                                                                                                                                                                        308
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RESULT 6
AAY70109
ID AAY7
XX AAY7
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XX Supe
KW Supe
KW Supe
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KW Cytc
XX W02(
XX W02(
XX Is-1
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DR N-P;
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DR N-P;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptococcal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200009154-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-JUN-2000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY70109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pyrogenic exotoxin A (SPE-A).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein;
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SPEA42;

The present amino acid sequence is the Streptococcal pyrogenic exotoxin A (SPE-A), a bacterial superantigen toxin (SAg), used formulation of SPE-A vaccine SPEAA2. The coding region of this is altered by site directed mutagenesis, introducing L42R mutagenesis.

used this mutation,

SAg

the toxin , that

WPI;

N-PSDB;

2000-224177/19. DB; AAZ51112.

Ulrich

RG,

Olson

ž

Bavari

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(REED-) REED ARMY INST RES WALTER.

13-AUG-1998;

13-AUG-1998;

98WO-US16766 98WO-US16766

Nucleic acid diagnosis of

encoding superantigen toxin useful superantigen-associated bacterial i

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vaccine tions –

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for

94-95;

118pp;

English.

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RESULT 7
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           results in disruption of binding of the toxin to both the MHC class II or T-cell antigen receptor. SPE-A has antibacterial and cytostatic activity. This sequence is useful for the production of SPE-A vaccines and specific antibodies. This vaccine overcomes the disadvantages of the chemically inactivated toxoids and is designed to protect individuals against one or several related staphylococcal and streptococcal toxins. It is used for the diagnosis and treatment or amelioration of superantigen-associated bacterial infections.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
The present sequence is the protein sequence of Streptococcus pyogenes vacche SPB242. The vacche differs from the native sequence by substitution of the Leu-42 residue by Arg. This mutation is expected to disrupt contact between the toxin and
                                                                                            Novel isolated and purified superantigen toxin DNA fragment which has been genetically altered, useful for producing vaccine for treatment superantigen toxin-associated bacterial diseases
                                                                                                                                                  WPI; 2002-546281/58.
N-PSDB; ABN84229.
                                                                                                                                                                                                                                                                                                                                 US6399332-B1
                                                                                                                                                                                                                                                                                                                                                                                                 Exotoxin A; attenuation;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptococcal pyrogenic exotoxin A vaccine SPEa42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABB79508 standard;
                                                                                                                                                                                                                                                                           01-SEP-1998;
                                                                                                                                                                                                                                                                                                     04-JUN-2002
                                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                     (USSA ) US
                                                                                                                                                                                                                                                25-JUN-1997;
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217; Conserv
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                                                                                                                                                                                          RG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ELKNQEMATLFKDKNIDIYGVEYYHLCYLCENAERSACI-GGVTNREGNHLEIPKKIVVK 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QQDPDPSQLHRSSLVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGPNYDKLKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VSIDGIQSLSFDIETNKKMYTAQELDYKVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKE 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SFWFDFFPEPEFTQSKYLMIYKDNETLDSNT-QIEVYLTTK 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VSIDGIQSLSFDIETNKKAVTAQELDYKVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QQDPDPSQLHRSSLVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGPNYDKLKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEWEDFFPEPEFTQSKYLMIYKDNETLDSNTSQIEVYLTTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ELKNQEMATLFKDKNVDIYGVEYYHLCYLCENAERSACIYGGVTNHEGNHLEIPKKIVVK
                                                                                                                                                                                                                     SEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   251 AA;
                                                                                                                                                                                          Olson
                                                                                                                                                                                                                                                                                                                                                                                                               SPEa; SPEa42; superantigen; antigen; toxin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                    Column
                                                                                                                                                                                                                                                                                                                                                                                                 mutant; mutein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                      pyogenes.
                                                                                                                                                                                                                     OF ARMY.
                                                                                                                                                                                                                                                97US-0882431
                                                                                                                                                                                                                                                                           98US-0144776
                                                                                                                                                                                          MΑ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Protein;
                                                                    63-65;
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                                                                                                                                                                                          Bavari
                                                                 46pp;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                  English
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                                                                                                                                                                                                                                                                                                                                                                                                              vaccine;
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                            SPEa
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                                                                                                            of
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RRESULT 8
AAB67344
AAB67344
AAB67344
AAB67344
AAB67344
AAB67344
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AAB673
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Best Local :
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                                                                                                                                                                                                                                                                   17-JAN-1990;
17-JAN-1991;
01-JUN-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US6180097-B1
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                                                                                                                                                                                              (TERM/)
                                                                                                                                                                                                                                               02-MAR-1993;
                                                                                                                                                                                                                                                                                                                                              19-JUN-1995;
03-OCT-1989;
                                                                                                                                                                                                                                                                                                                                                                                               31-JAN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                             30-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30-JAN-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tumour;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptococcus pyrogenes toxin A protein.
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                                                                                                                                                                                                TERMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cancer;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pyogenes
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95US-0491746.
89US-0416530.
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92US-0891718.
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98.2%;
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2

Tumor cell capable of stimulating antitumor immune reactivity in vitro or in vivo comprises exogenous nucleic acids encoding a superantigen and a costimulatory molecule -

WPI;

2001-158657/16

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RESULT 9
AAR13209
ID AAR13209

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Matches 216
SPE A can be used for tumouricidal treatment, esp. with a haemolysin. Synthetic polypeptides having structural homology to Streptococcal pyrogenic exotoxins are claimed, provided the homology includes statistically significant sequence homology, alignment of Cysteine
                                                                                                                                                            Treating cancer with enterotoxin from Staphylococcus aureus administered by IV injection, having same tumoricidal activity as Staphylococcal protein A without potential toxic reactions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present invention relates to a tumour cell capable of stimulating antitumor immune reactivity in vitro or in vivo contains and expresses an exogenous nucleic acid molecule encoding a superantigen or its active fragment and an exogenous nucleic acid molecule encoding a costimulatory molecule that activates T cells in conjunction with an antigenic stimulus. The invention may be used for cancer therapy by stimulating an anticancer immune response
                                                                                                                         Disclosure;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPE A;
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97.78;
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Pred. No. 9.
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RESULT 10
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                                                               The sequences given in AAR45011-21 are Staphylococcal enterotoxins which may be used in the methods of the invention for treating can in a patient. These SEs, and homologues of them, can be used as tumouricidal agents for treating cancers and autoimmune disease. They exhibit tumouricidal activity and toxicity identical to that observed for the Protein A perfusion system. They may be administ
    Sequence
                                                                                                                                                                                                                                                                                                       Use of staphylococcal enterotoxin(s) and homologues - for treating cancer in a patient or for the treatment of auto-immune
                                                                                                                                                                                                                                        Disclosure;
                                                                                                                                                                                                                                                                                      diseases
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    221 AA,
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97.38;
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Pred. No. 2.8e-83;
1; Mismatches
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rotein A; perfusion system.
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Query Match

44.98;

Score 1123;

DB 14;

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221;

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RESULT 11
ABB76240
ID ABB76240
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                                                                                                                                                                                                                                                                                                                                                                                                                                         31-JAN-1994;
19-JUN-1995;
03-OCT-1989;
17-JAN-1990;
17-JAN-1991;
01-JUN-1992;
The present sequence is the protein sequence of exotoxin A (SPE A) of Streptococcus pyogenes. Similarity is shown, in several stretches of sequence, between staphylococcal enterotoxins, streptococcal progenic exotoxins and staphylococcal excloiative toxins (see ABB76234 44). In the present invention, synthetic polypeptides useful in tumour therapy and in blocking or destroying autoreactive T and B lymphocyte populations are characterised by substantial structural homology to staphylococcal enterotoxin A and enterotoxin B, and to streptococcal pyrogenic exotoxins, with statistically significant sequence homology and similarity (2 value of Lipman and pearson algorithm in Monte Carlo analysis exceeding to include alignment of cysteine residues and similar hydropathy
                                                                                                                                                                                                                                                    Reagent for treating cancer without the need for e.g. radiotherapy, comprises a specific \nu beta subset of \tau cells sensitized to a growing tumor and stimulated with superantigens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Exotoxin A;
antitumour;
                                                                                                                                                                                                                                                                                                                        WPI; 2002-415198/44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptococcus pyogenes
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therapy.
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92US-0891718.
93US-0025144.
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95US-0491746.
89US-0416530.
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Mutant SPE-A toxin with at least substantially non-lethal - used
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DB; AAW12097.
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                                                                                                                                     MINNESOTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pyogenes Streptococcal toxin
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                                                                                                                                                                                                      96WO-US10252
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                                                                                                                                                                                                                                                                                                                                                                                                                                       damage;
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                                                                                                    Schlievert
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Pred. No. 2.
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                 amino acid change
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profiles. These superantigens are used to treat solid tumours, including their metastases, without radiation, surgery or standard chemotherapeutic agents. A claimed method of human cancer treatment involves contacting haematopoletic cells from a patient with one or more superantigens ex vivo to generate stimulated cells, selecting a specific V beta subset of cells, and reintroducing these cells into the patient to induce an in vivo therapeutic, tumouricidal reaction.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      vaccine; protection; treatment; cancer; neutralising streptococcal toxic shock syndrome; STSS; symptom; a fever; hypotension; group A streptococcal infection; fascitis; liver damage; T cell; lymphoma; ovarian; ut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptococcal; toxin A; SPE-A; non-lethal; mutant;
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infection; myositis;
Stoehr
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RESULT 13
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ID WAW59
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present sequence is Streptococcus pyogenes Streptococcal toxin A (SPE-A), from which a non-lethal mutant SPE-A, comprising at least 1 amino acid change, can be derived. The mutant SPE-A can be used to produce vaccines to protect animals against wild type (SPE-A and to treat cancer and streptococcal toxic shock syndrome (GTSS). The mutant SPE-A causes neutralising antibodies (Ab) to be produced, which may be used to ameliorate STSS symptoms, e.g. fever, hypotension, group A streptococcal infection, myositis, fascitis and liver damage. The neutralising Ab is preferably administered in conjunction with antibiotic therapy. The mutant SPE-A is especially useful for treating T cell lymphomas, and ovarian and uterine cancer. It is thought that mutant SPE-A can be selectively toxic to T cell lymphoma cells.
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Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                              SPE-A toxin; nonlethal; mutant; Streptococcus pyogenes exotoxin wild type; nontoxic; antibody; vaccine; immunity; ovarian cancer streptococcal toxic shock syndrome; STSS; T cell lymphoma;
                                             WPI; 1998-333330/29
                                                                                        Ohlendorf D,
                                                                                                                                                                                                                                                                             11-JUN-1998
                                                                                                                                                                                                                                                                                                                                                                     Streptococcus
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                                                                                          Schlievert
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Pred. No. 4.1e-83;
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nt SPE-A can
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RESULT 14
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Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                      Streptococcal; toxin A; SPE-A; non-lethal; mutant; py vaccine; protection; treatment; cancer; neutralising streptococcal toxic shock syndrome; STSS; symptom; an fever; hypotension; group A streptococcal infection; fascitis; liver damage; T cell; lymphoma; ovarian; ut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This is the amino acid sequence of the Streptococcus pyogenes exotoxin $\epsilon \text{{SPE-A}}$ toxin}. The novel mutant Streptococcal SPE-A toxin has at least 1 as change and is nonlethal compared with a protein to wild type SPE-A toxin. The mutant SPE-A toxins are nontoxic and can produce antibodies that neutralise wild type SPE-A toxin activity. The toxins can be used in vaccines and therapeutics to generate a protective immune response against streptococcal infection. They can be used to protect against that the toxins can be used for treating animals with symptoms of streptococcal toxic shock syndrome (STSS). In addition, the toxins can be used for treating animals with symptoms of streptococcal infection or STSS and in methods for stimulating T cell proliferation and in the treatment of cancer. In particular they can be used for treating T cell lymphomas, and ovarian and uterine cancer.
                            19-DEC-1996
                                                                                                      Misc-difference
                                                                                                                                                                                                               Streptococcus
Synthetic.
                                                                                                                                                                                                                                                                                                                                                     Streptococcus
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                                                                                                                                   Peptide
                                                                                                                                                                    Peptide
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ELKNQEMATLFKDKNIDIYGVEYYHLCYLCENAERSACI-GGVTNREGNHLEIPKKIVVK 120
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fig 3;
                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                              pyogenes
                                                                                                                                                                                                                                                                                                                                                     pyogenes Streptococcal toxin A mutant
                                                                                                      /label- mat_peptide
225
                                                                                      'note= "wild type Ser
                                                                                                                                                  /label-
                                                                                                                                                                                 Location/Qualifiers
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Pred. No. 4.1e-83
1; Mismatches
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                                                                                     replaced
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                                                                                                                                                                                                                                                         symptom; amelioration;
infection; myositis;
ovarian; uterine.
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                                                                                                                                                                                                                                                                                                      production;
ng antibody;
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07-JUN-1996;

96WO-US10252

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RESULT 15
AAW12146
ID AAW12
XX AAW12
XX 04-N0
DT 04-N0
DE Strep
XX Strep
KW vacci
KW strep
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present sequence is a non-lethal Streptococcus pyogenes

Streptococcal toxin A (SPE-A) mutant, which can be used to produce

C varcines to protect animals against wild type SPE-A and to treat

C cancer and streptococcal toxic shock syndrome (STSS). The mutant

SPE-A causes neutralising antibodies (Ab) to be produced, which

C may be used to ameliorate STSS symptoms, e.g. fever, hypotension,

C group A streptococcal infection, myositis, fascitis and liver

C damage. The neutralising Ab is preferably administered in

C conjunction with antibiotic therapy. The mutant SPE-A is

c especially useful for treating T cell lymphomas, and ovarian and

c uterine cancer. It is thought that mutant SPE-A can be selectively

C N.B. Sequence not given in the specification, but constructed

c using the wild type SPE-A sequence given on pages 77-79.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
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Best Local :
                                                                                                                                vaccine; protection; treatment; cancer; neutralising antibody; streptococcal toxic shock syndrome; STSS; symptom; amelioration; fever; hypotension; group A streptococcal infection; myositis; fascitis; liver damage; T cell; lymphoma; ovarian; uterine.
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                                                       Synthetic.
                                                                                 Streptococcus
                                                                                                                                                                                                                                                                                                          Streptococcus
                                                                                                                                                                                                                                                                                                                                                                     04-NOV-1997
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                                                                                                                                                                                                                                                  Streptococcal; toxin A; SPE-A; non-lethal; mutant; production;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-JUN-1995;
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                                                                                 pyogenes
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Location/Qualifiers
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96.8%;
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Pred. No. 7.2e
2; Mismatches
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                                                                                                                                                                                                                                                                                                                Streptococcal toxin A (SPE-A) mutant, which can be used to produce to vaccines to protect animals against wild type SPE-A and to treat cancer and streptococcal toxic shock syndrome (STSS). The mutant SPE-A causes neutralising antibodies (Ab) to be produced, which may be used to ameliorate STSS symptoms, e.g. fever, hypotension, group A streptococcal infection, myositis, fascitis and liver damage. The neutralising Ab is preferably administered in conjunction with antibiotic therapy. The mutant SPE-A is especially useful for treating T cell lymphomas, and ovarian and tuterine cancer. It is thought that mutant SPE-A can be selectively toxic to T cell lymphoma cells.

N.B. Sequence not given in the specification, but constructed using the wild type SPE-A sequence given on pages 77-79.
                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 214; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mutant SPE-A toxin with at least one amino acid change is substantially non-lethal - used in vaccine composition for treatment of cancer and streptococcal toxic shock syndrome etc.
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                                                                                                                                                                     SEWEDFFPEPEFTQSKYLMIYKDNETLDSNTSQIEVYLTTK
                SFWFDFFPEPEFTQSKYLMIYKDNETLDSNT-QIEVYLTTK 220
                                                       VSIDGIQSLSFDIETNKKMVTAQELDYKVRKYLTDNEQLYTNGPSKYETGYIKFIPKNKE
                                                                                                               ELKNQEMATLFKDKNVDIYGVEYYHLCYLCENAERSACIYGGVTNHEGNHLEIPKKIVVK
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Pred. No. 8.7e-83;
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Search completed: June 23, 2003, Job time: 69.3449 secs

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Database
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Listing first 45 summaries
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result

Query

311 23.5 257 9 US-09-870-759-8 307 23.2 257 1 US-08-882-431-2 307 23.2 257 1 US-08-882-431-2 291.5 22.0 233 9 US-10-002-784A-4 291.5 22.0 233 9 US-09-900-766-6 289.5 21.9 233 9 US-09-900-766-7 289.5 21.9 233 9 US-09-900-766-7 289.5 21.9 233 9 US-09-900-766-3 289.5 21.9 233 9 US-09-900-766-3 281.5 21.3 203 9 US-09-900-766-3 263.5 19.9 233 9 US-09-900-766-1 213.5 16.1 89 9 US-10-002-784A-37 213.5 16.1 89 9 US-10-002-784A-36 182.5 13.8 89 9 US-10-002-784A-36 182.5 13.8 89 9 US-10-002-784A-36 183.6 11.4 82 9 US-10-002-784A-33 115.1 11.4 82 9 US-10-002-784A-35 115.1 8.9 233 1 US-08-882-431-12 116.8 8.9 2US-10-002-784A-32 117.5 8.9 233 1 US-08-882-431-12 118.8 8.9 9 US-10-002-784A-34 117.5 8.9 233 1 US-08-882-431-12 118.8 8.9 US-10-002-784A-32 119.8 8.9 US-10-002-784A-33 119.8 8.9 US-10-002-784A-34 117.5 8.9 233 1 US-08-882-431-12 118.8 8.9 US-10-002-784A-32 119.8 8.9 US-10-002-784A-34 117.5 8.9 233 1 US-08-882-431-12 118.8 8.9 US-10-002-784A-32 119.8 8.9 US-10-002-784A-32 110.8 8.9 US-10-002-784A-32 110.9 8.2 234 9 US-09-870-759-18	23.5 257 9 US 23.2 257 1 US 23.2 257 1 US 23.2 257 9 US 22.0 233 9 US 22.0 233 9 US 22.1 9 233 9 US 21.9 233 9 US 21.9 233 9 US 21.1 233 1 US 21.3 203 9 US 21.1 89 9 US 115.8 89 9 US 115.8 89 9 US 115.8 89 9 US 115.8 89 9 US 15.8 89 9 US 25.8 89 9 US 26.8 89 9 US 27.9 27.9 US 27.9 27.9 US 27.9 27.9 US	45	44	43	42	41	40	39	38	37	36	35	3 4	w	32	31	30	29	28	27	26	25	24	23	22	21	
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ALIGNMENTS

US-08-882-431-16

Sequence 16, Application US/08882431 Publication No. US20030009015A1

GENERAL INFORMATION:

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ATTORNEY/AGENT INFORMATION:
NAME: MOTAN, John
REGISTRATION NUMBER: 26,313
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 619-2065
TELEFAX: (301) 619-7714
INFORMATION FOR SEQ ID NO: 16:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                        CLASSIFICATION: PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Microsoft Word 6.0 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Bacterial Superantigen
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                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: Apple Macintosh OPERATING SYSTEM: Macinto
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I: US Army MRMC
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                 Amino Acid
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Mark A. Olson
                                                                                                                                                                                                                                                                                            June 25, 1997
Unknown
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PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
SOFTWARE: Apple Macintosh Microsoft Word 6.0
SEQ ID NO 16
LENGTH: 251
TYPE: PRT
ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 16, Application US/10002784A Publication No. US20030036644A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                        Matches
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Best Local :
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Ulrich, Robert G.
TITLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                         Local 251;
    241 TSQIEVYLTTK
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                              KYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIYKDNETLDSN
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                                                                                                           ENAERSACIYGGYTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMYTAQELDYKVR
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                                                                                           ENAERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVR
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Pred. No. 9.5e-110;
); Mismatches 0;
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Pred. No. 9.5e-110;
); Mismatches 0;
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                      TITLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
CURRENT APPLICATION NUMBER: US/10/002,784A
CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR FILING DATE: 97-66-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
SOFTWARE: Apple Macintosh Microsoft Word 6.0
SEQ ID NO 26
LENGTH: 220
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US-10-002-784A-26
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; SEQ ID NO 13
; LENGTH: 251
; TYPE: PRT
; ORGANISM: Streptococcus pyogenes
US-08-973-391A-13
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US-08-973-391A-13
; Sequence 13, Application US/08973391A
; Patent No. US20020054887A1
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APPLICANT:
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TITLE OF INVENTION: MUTANTS OF STREPTOCOCCAL TOXIN A AND METHODS
FILE REFERENCE: 600.3110SW0
CURRENT APPLICATION NUMBER: US/08/973,391A
CURRENT FILING DATE: 1998-03-12
PRIOR APPLICATION NUMBER: PCT/US96/10252
PRIOR PELLING DATE: 1996-06-07
PRIOR PILING DATE: 1996-06-07
                                                                                                                                                                                    APPLICANT: Ulrich, Robert G.
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PRIOR FILING DATE: 1995-06-07
NUMBER OF SEQ ID NOS: 13
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ORGANISM: Artificial
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241 TSQIEVYLTTK 251
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Stoehr, Jennifer
Ohlendorf, Dougl
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Pred. No. 1.7e-100;
0; Mismatches 2;
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Length 251;

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; OTHER INFORMATION: mutant streptococcal pyrogenic exotoxin-A
US-10-002-784A-26
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US-09-870-759-20
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FILE REFERENCE: 003/233/SAP
CURRENT APPLICATION NUMBER: US/10/002,784A
CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
SOFTWARE: Apple MacIntosh Microsoft Word 6.0
SEQ ID NO 27
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Sequence 20, Application US/09870759 Patent No. US20020177551A1
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                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 468
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                                                                             VSIDGIQSLSFDIETNKKMVTAQELDYKVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKE 180
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Pred. No. 2.7e-93;
1; Mismatches 1;
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Pred. No. 7.3e-93;
1; Mismatches 1;
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TYPE: PRT
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ORGANISM: Streptococcus pyogenes US-09-870-759-20
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; LENGTH: 266
; TYPE: PRT
; ORGANISM: Staphylococcus aureus
US-09-870-759-10
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US-09-870-759-10
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TITLE OF INVENTION: COMPOSITIONS AND METH
FILE REFERENCE: 870759
CURRENT APPLICATION NUMBER: US/09/870,759
CURRENT FILING DATE: 2002-01-14
CURRENT FILING DATE: 2002-01-01-01
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PRIOR FILING DATE: 2000-05-30
NUMBER OF SEQ ID NOS: 166
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: TERMAN, David S
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATMENT OF NEOPLASTIC DISEASE
FILE REFERENCE: 870759
CURRENT APPLICATION NUMBER: US/09/870,759
CURRENT FILING DATE: 2002-01-14
                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/208,128
PRIOR FILING DATE: 2000-05-30
NUMBER OF SEQ ID NOS: 166
SOFTWARE: PatentIn version 3.1
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123; Conserv
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TSQIEVYLTTK 250
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                                                                                                                                                                     43.6%;
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83.7%;
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Pred. No. 7.5e
7; Mismatches
                                                                                                                                               Score 576.5; DB 9; Pred. No. 1.8e-43; 8; Mismatches 75;
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7.5e-88;
hes 33;
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; TYPE: PRT
; ORGANISM: Staphylococcus aureus
US-09-150-947B-12
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US-09-150-947B-12
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                                                                                                                                                                                  Sequence 8, Application US/10151336
Publication No. US20030079248A1
GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 12
LENGTH: 239
                                                                                      APPLICANT: Mason, Hugh
APPLICANT: Palmer, Kenneth
APPLICANT: Hefferon, Kathleen
APPLICANT: Mor, Tsafrir
APPLICANT: Arntzen, Charles
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CURRENT APPLICATION NUMBER: US/10/151,336
CURRENT FILING DATE: 2002-05-20
PRIOR APPLICATION NUMBER: US/09/414,276
                                                   APPLICANT: Arntzen, Charles
TITLE OF INVENTION: Gemini Virus Vectors for Gene Expression
FILE REFERENCE: 4868/84453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 12, Application US/09150947B Patent No. US20020028211A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: BROAD SPECTRUM PYROGENIC TITLE OF INVENTION: ANTAGONISTS AND VACCINES FILE REFERENCE: A31967-PCT-USA-A CURRENT APPLICATION NUMBER: U5/09/150,947B CURRENT FILING DATE: 1998-09-10 PRIOR APPLICATION NUMBER: PCT/IL97/00438 PRIOR FILING DATE: 1997-12-30
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NUMBER OF SEQ ID NOS:
SOFTWARE: FastSEQ for
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                                                                                                                                                                                                                                                                                                                                                                                 NGNQLDKYRSITVRVFEDGKNLLSFDVQTNKKKVTAQELDYLTRHYLVKNKKLYEFNNSP 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNVRVEFKNKDLADKYKDKYVDVFGANYYYQCYFSKKTNDINSHETDKRKTCMYGGVTEH 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SQPDPKPDELHKSSKFTGLMENMKVLYDDNHVSAINVKSIDQFLYFDLIYSIKDTKLGNY 61
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TIFLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
CURRENT APPLICATION NUMBER: US/10/002,784A
CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
SOPTWARE: Apple Macintosh Microsoft Word 6.0
SOPTWARE: Apple Macintosh Microsoft Word 6.0
SEQ ID NO 6
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US-10-002-784A-6
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; TYPE: PRT
; ORGANISM: bean yellow dwarf virus
US-10-151-336-8
                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
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Matches 125; Conserv
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NUMBER OF SEQ ID NOS: 22
                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
           131
                                               124
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                                                                                                                                                                        227 YLMIYKDNETLDSNTSQIEVYLTTK 251
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                                                                                                     LRSHDLIYNVSGP---NYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLCENA----
                            ----ERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYK 178
       SHQTDKRKTCMYGGVTEHNGNQLDKYRSITVRVFEDGKNLLSFDVQTNKKKVTAQELDYL
                                                                              FLYFDLIYSIKDTKLGDYDNVRVEFKNKDLADKYKDKYVDVFGANYYYQCYFSKKTNDIN
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                                                                                                                                                                                                                              Score 567:5; DB 9;
Pred. No. 1.1e-42;
0; Mismatches 75;
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Pred. No. 2.4e-43;
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US-10-002-784A-8
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US-10-002-784A-10
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                                                     NUMBER OF SEQ ID NOS: 40
SOFTWARE: Apple Macintosh Microsoft Word 6.0
SEQ ID NO 8
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Best Local Similarity 48.5

Matches 115; Conservative
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CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
SOFTWARE: Apple Macintosh Microsoft Word 6.0
SEQ ID NO 10
                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
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                                                                                                       APPLICANT: Ulrich, Robert G.

TITLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
CURRENT SPLICATION NUMBER: US/10/002,784A
CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
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TITLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
ORGANISM: Artificial
                  TYPE: PRT
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ORGANISM: Artificial sequence
FEATURE:
                                       LENGTH: 266
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 DNVRVEFKNKDLADKYKDKYVDVFGANAYYQCAFSKKTNDINSHQTDKRKTCMYGGVTEH
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SQPDPKPDELHKSSKFTGLMENMKVLYDDNHVSAINVKSIDQFRYFDLIYSIKDTKLGNY
                                                                                                                                                                                                                                                                                                                                                                                                           YETGYIKFI-ENENSFWYDMMPAPGDKFDQSKYLMMYNDNKMVDSKDVKIEVYLTTK 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NGNQLDKYRSITVRVFEDGKNLLSFDVQTNKKKVTAQELDYLTRHYLVKNKKLYEFNNSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AQQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGP---NY
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sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 563; DB 9;
Pred. No. 2.4e-42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 239;
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; TOPOLOGY: U
; MOLECULE TYPE:
US-08-882-431-10
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US-08-882-431-10
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; OTHER INFORMATION: mutant staphylococcal enterotoxin B periplasmic US-10-002-784A-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 10, Application US/088 Publication No. US20030009015A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Robert
APPLICANT: Mark A.
APPLICANT: Sina Ba
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                             REGISTRATION NUMBER: 26,313
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 619-2065
TELEFAX: (301) 619-7714
INFORMATION FOR SEQ ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Macinto
                                                                                               SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Microsoft Word 6.0 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Bacteria TITLE OF INVENTION: Vaccines NUMBER OF SEQUENCES: 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                TYPE:
                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                FILING DATE: J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: John Moran
STREET: US Army MRMC
CITY: FORT DETRICK
                                           STRANDEDNESS:
                                                                                                                                                                                                                  NAME:
                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
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                                                                              LENGTH:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   191 TRHYLVKNKKLYEFNNSPYETGYIKFI-ENENSFWYDMMPAPGDKFDQSKYLMMYNDNKM
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21702-5012
                                                              Amino Acid
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VDSKDVKIEVYLTTK 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SHQTDKRKTCMYGGVTEHNGNQLDKYRSITVRVFEDGKNLLSFDVQYNKKKVTAQELDYL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MARYLAND
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                                 Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sina Bavari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Robert G. Ulrich,
Mark A. Olson
                                                                                                                                                                                                                  John
                                                                                                                                                                                                                                                                                                                  June 25,
                                              Unknown
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                                                                                                                                                                                               26,313
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 14, Application US/08882431
Publication No. US20030009015A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 42.2%; Score 558; DB 1; Length 239; Best Local Similarity 47.7%; Pred. No. 6.7e-42; Matches 113; Conservative 39; Mismatches 69; Indels
                                           Matches 115;
                                                                            Query Match
                                                                                                                                                                                                                                                   TELEFAX: (301) 619-7714 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Robert G. Ull
APPLICANT: Mark A. Olsor
APPLICANT: Sina Bavari
TITLE OF INVENTION: Back
TITLE OF INVENTION: Vaco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple MacIntosh
OPERATING SYSTEM: MacIntos
                                                                                                                                     TOPOLOGY: U
                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 266
                                                                                                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION: TELEPHONE: (301) 619-2065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Microsoft Word 6.0 CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: John Moran
STREET: US Army MRMC -504 Scott Street MCMR-JA (John Moran-Patent Atty)
CITY: FORT DETRICK
                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                            TYPE: Amino Acid
                                                                                                                                                                                                                                                                                      TELEPHONE:
                                                                                                                                                                                                                                                                                                                                             NAME: Moran, John REGISTRATION NUMBER: 26,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: UFILING DATE: June 25,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                         Local Similarity 44.9 los 115; Conservative
                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER:
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   11 MVF-FVLVTFLGLTISOEVFAQQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YETGYIKFI-ENENSFWYDMMPAPGDKFDQSKYLMMYNDNKMVDSKDVKIEVYLTTK 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDSNTSQIEVYLTTK 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EGNHLEIPKKIVVKYSIDGIQSLSFDIETNKKMYTAQELDYKVRKYLTDNKQLYTNGPSK 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNVRVEFKNKDLADKYKDKYVDVFGANAYYQCAFSKKTNDINSHQTDKRKTCMYGGVTEH 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AQQDPDPSQLHRSS-LVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGP---NY 85
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                                                                                                                                                      Unknown
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                                                                                                                                                                          Unknown
                                                          41.8%;
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                                       51;
                                       Score 553; DB 1; Length 266; Pred. No. 2.2e-41; Mismatches 72; Indels
                                         18;
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US-10-002-784A-14
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CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
SOFTWARE: Apple MacIntosh Microsoft Word 6.0
SEQ ID NO 14
LENGTH: 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 14, Application US/10002784A Publication No. US20030036644A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 115; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Ulrich, Robert G.
TITLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
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249 TVDSKSVKIEVHLTTK 264
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249
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                                                                                                                                                                                                                                                                                                        12 LIFALILVLFTPNVLAE---SQPDPTPDELHKASKFTGLMENMKVLYDDHYVSATKVKSV
                   TLDSNTSQIEVYLTTK 251
                                                                                                   KVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNE
                                                                                                                                                     GKYTGGKTCMYGGITKHEGNHFDNGNLQNVLIRVYENKRNTISFEVQTDKKSYTAQELDI 188
                                                                                                                                                                                                                                                    DOLRSHDLIYNVSG---PNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC--ENA 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNE 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ER----SACIYGGYTNHEGNHLEIP--KKIVVKVSIDGIQSLSFDIETNKKMVTAQELDY 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DKFRAHDLIYNISDKKLKNYDKVKTELLNEGLAKKYKDEVVDVYGSNYYVNCYFSSKDNV 128
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LIFALILVLFTPNVLAE----SQPDPTPDELHKASKFTGLMENMKVLYDDHYVSATKVKSV
TVDSKSVKIEVHLTTK
                                                                           KARNFLINKKNLYEFNSSFYETGYIKFIENNGNTFWYDMMPAPGDKFDQSKYLMMYNDNK
                                                                                                                                                                                        ER----SACIYGGVTNHEGNHLEIP--KKIVVKVSIDGIQSLSFDIETNKKMVTAQELDY 177
                                                                                                                                                                                                                              DKFRAHDLIYNISDKKLKNYDKVKTELLNEGLAKKYKDEVVDVYGSNYYVNCYFSSKDNV 128
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44.9%; Pred. No. 2.2e-41;
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Search completed: June 23, 2003, 16:16:38 Job time: 13.9166 secs

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Post-processing: Minimum Match 0%
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SUMMARIES
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A;Cross-references: EMBL:X61555; NID:g47309; PIDN:CAA43753.1; PID:g47310
A;Experimental source: Streptococcus pyogenes strain MGAS327 isolate Arizona unassign
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, September 199

acid sequence not shown; translation not shown

EMBL:X61557; NID:g47319; PIDN:CAA43755.1; PID:g47320

A; Molecule type: DNA A; Residues: 9-244 <NEY>

A; Accession: S18791

A; Status: nucleic acid sequence not shown; translation not shown

A; Molecule type: DNA A; Residues: 9-244 <NEO>

A; Cross-references:

A; Status: nucleic A; Accession: S18796 A;Cross-references: EMBL:X61559; NID:g47293; PIDN:CAA43757.1; PID:g47294
A;Experimental source: Streptococcus pyogenes strain MGAS167 isolate Texas unassigned
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, September 199

A; Molecule type: DNA A; Residues: 9-244 <NEZ>

A; Experimental source: Streptococcus pyogenes A; Note: the nucleotide sequence was submitted A; Accession: \$18785

A; Status: nucleic acid sequence not shown; translation not shown

45	44	43	42	41	40	39	38	37	36	35	34	ယ	32	31	30
103	103.5	103.5	104.5	104.5	105	105	105	105	105.5	108	108	108.5	108.5	109	109.5
7.8	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.9	8.0	8.2	8.2	8.2	8.2	8.2	8.3
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probable membrane	prrC protein - Es	hypothetical prot	immunoglobulin A	hypothetical prote	Dsclb precursor	Dscla precursor -	desmocollin la pı	desmocollin 1b pre	transport protein	hypothetical prote	ORF MSV181 hypothe	FUSION, methionin	exotoxin 7 (impor	toxic shock syndr	hypothetical prote

ALIGNMENTS

exotoxin type A precursor (allele 1) - Streptococcus pyogenes phage T12 R;Alternate names: erythrogenic toxin; scarlet fever toxin C:Species: Streptococcus pyogenes phage T12 C:Species: Streptococcus pyogenes phage T12 C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999 C:Accession: S29659; S18782; S18784; S18785; S18791; S18796; S18797; S18800 A; Molecule type: DNA A; Residues: 9-244 <NEA> A;Cross-references: EMBL:X61560; NID:g47287; PIDN:CAA43758.1; PID:g47288
A;Experimental source: Streptococcus pyogenes strain MGAS156 isolate Nebraska unassig
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, September 199 A; Molecule type: DNA A; Residues: 9-244 <NEL> A;Title: Characterization and clonal distribution of four alleles of the speA gene en A;Reference number: S18782; MUID:92044323; PMID:1940804 A; Molecule type: DNA A; Residues: 1-251 <WEE> A; Title: Nucleotide sequence of the type A streptococcal exotoxin (erythrogenic toxin A; Reference number: S29659; MUID:86166804; PMID:3514452 A; Status: nucleic acid sequence not shown; translation not shown A; Status: nucleic acid sequence not shown; translation not shown R:Nelson, K.; Schlievert, P.M.; S J. Exp. Med. 174, 1271-1274, 1991 A;Cross-references: GB:U40453; EMBL:M19350; NID:g1877426; PIDN:AAC48868.1; R;Nelson, K.; Schlievert, P.M.; Selander, R.K.; Musser, J.M. A; Accession: R; Weeks, C.R.; A; Accession: S18784 A; Accession: S18782 Infect. Immun. Cross-references: EMBL:X61556; NID:g47291; PIDN:CAA43754.1; PID:g47292; Cross-references: EMBL:X61556; NID:g47291; PIDN:CAA43754.1; PID:g47292; Experimental source: Streptococcus pyogenes strain MGAS165 isolate Minnesota unassi; Note: the nucleotide sequence was submitted to the EMBL Data Library, September 199; Note: S29659 Ferretti, J.J. 52, 144-150, 1986 PID:918774

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A;Gene: speA; speA1
C;Superfamily: enteroi
C;Keywords: exotoxin
F;1-30/Domain: signal
F;31-251/Product: exo
                                                                                                                                                                                                                                                                                                                                                     exotoxin type A precursor (allele 3) - Streptococcus pyogenes phage (strain MGAS158 N;Alternate names: scarlet fever toxin C:Species: Streptococcus pyogenes phage A;Variety: strain MGAS158 isolate Nebraska; strain MGAS485 isolate Yugoslavia; strain C;Date: 29-Jan-1993 *sequence_revision 29-Jan-1993 *text_change 16-Jul-1999 C;Accession: S18783; S18793; S18794; S18801; S18795 R;Nelson, K.; Schlievert, P.M.; Selander, R.K.; Musser, J.M. J. Exp. Med. 174, 1271-1274, 1991 A;Title: Characterization and clonal distribution of four alleles of the speA gene e A;Accession: S18782; MUID:92044323; PMID:1940804
                                                                                                                                                                                                                                                                     A;Status: nucleic acid
A;Molecule type: DNA
A;Residues: 1-236 <NEL>
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S18783
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   A;Cross-references: EMBL:X61569; NID:g47313; PIDN:CAA43767.1; A;EXperimental source: strain MGAS485 isolate Yugoslavia unas:
                                                                                                                                                                         A;Cross-references: EMBL:X61568; NID:g47289; PIDN:CAA43766.1; PID:g47290 A;Experimental source: strain MGAS158 isolate Nebraska unassigned phage A;Note: the nucleotide sequence was submitted to the EMBL Data Library,
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A;Experimental source: Streptococcus pyogenes strain MGAS500 isolate New Zealand unassi
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, September 1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: EMBL:X61558; NID:g47321; PIDN:CAA43756.1; PID:g47322
A;Experimental source: Streptococcus pyogenes strain MGAS494 isolate France unassigned A;Note: the nucleotide sequence was submitted to the EMBL Data Library, September 1991
A;Accession: S,18800
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A; Note: the nucleotide
A; Accession: S18797
A; Status: nucleic acid
                                                                A;Molecule type: DNA
A;Residues: 1-236 <NEA>
                                                                                                                        A;Status: nucleic
                                                                                                                                                      A; Accession: S18793
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A; Residues: 9-228 <NES>
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                                                                                                                        acid sequence not shown;
                                                                                                                                                                                                                                                                                                                                acid sequence not shown; translation
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence
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Pred. No. 1.
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tus predicted <M</pre>
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67.1; PID:g47314 unassigned phage
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F; 23-236/Product:
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A; Residues: 1-236 <NEO>
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A; Residues: 1-236 <NEY>
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Best Local :
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C; Superfamily: enterotoxin C; Keywords: exotoxin
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A;Experimental source: strain MGAS491 isolate United Kingdom unassigned
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Note: the nucleotide sequence was submitted to the EMBL Data Library. September A; Accession: \$18794
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A;Experimental source: strain MGAS495 isolate Germany unassigned phage
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A;Experimental source: strain MGAS624 isolate Germany unassigned phage
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the nucleotide sequence was submitted
                          LYTNGPSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIYKDNETLDSNTSQI 244
                                                                                                                           IYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVRKYLTDNKQ
                                                                                                                                                                                                DQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNYDIYGVEYYHLCYLCENAERSAC
                                                                                                                                                                                                                                                                                                                              KKMVFFVLVTFLGLTISQEVFAQQDPDPSQLHRSSLVKNLQNIYFLYEGDPVTHENVKSV
LYTNGPSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIYKDNETLDSNTSQI 236
                                                                                                   IYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVRKYLTDNKQ
                                                                                                                                                                                                                                                                                                         KKMVFFVLVTFLGLTISQEVFAQQDPDPSQLHRSSLVKNLQNIYFLYEGDPVTHENVKSV
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Pred. No. 4
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4.8e-85;
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exotoxin type A precursor (allele 2) - Streptococcus pyogenes phage (strain MGAS: N;Alternate names: scarlet fever toxin C:Species: Streptococcus pyogenes phage C:Species: Streptococcus pyogenes phage A;Variety: strain MGAS250 isolate California; MGAS250

speA

gene

eg

A;Status: nucleic acid sequence not shown; translation not shown A;Molecule type: DNA A;Residues: 1-236 <NEL> A;Cross-references: EMBL:X61561; NID:g47297; PIDN:CAA43759.1; PID:g47298 A;Cross-references: EMBL:X61561; NID:g47297; PIDN:CAA43759.1; PID:g47298 A;Experimental source: strain MGAS250 isolate California unassigned phage A;Note: the nucleotide sequence was submitted to the EMBL Data Library, & A;Accession: S18787 phage September 199

A;Status: r A;Molecule sequence not shown; translation not

g

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A; Accession: S18799

A; Status: nucleic acid sequence not shown; transl A; Molecule type: DNA

A; Residues: 1-236 <NES>
A; Experimental source: strain MGAS496 isolate Ger

A; Note: the nucleotide sequence was submitted to C; Genetics:
A; Gene: speA2

C; Superfamily: enterotoxin B

C; Keywords: exotoxin

F; 1-32/Domain: signal sequence (fragment) #status

F; 23-236/Product: exotoxin type A (fragment) #status
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A; Cross-references: EMBL:X61564; NID:g47305; PIDN:CAA43762.1; PID:g47306
A; Experimental source: strain MGAS285 isolate Colorado unassigned phage
A; Note: the nucleotide sequence was submitted to the EMBL Data Library, Se
A; Accession: S18792
A; Status: nucleic acid sequence not shown; translation not shown
A; Molecule type: DNA
A; Residues: 1-236 <NEO>
A; Cross-references: EMBL:X61565; NID:g47311; PIDN:CAA43763.1; PID:g47312
A; Experimental source: strain MGAS480 isolate Yugoslavia unassigned phage
A; Note: the nucleotide sequence was submitted to the EMBL Data Library, Se
RESULT 4
$3.18789
$contoxin A precursor (allele 4) - Streptococcus
N;Alternate names: scarlet fever toxin
C;Species: Streptococcus pyogenes
A;Variety: strain MGAS262 isolate California
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A;Experimental source: strain MGAS492 isolate United Kingdom unassigned |
A;Note: the nucleotide sequence was submitted to the EMBL Data Library,
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A; Status: nucleic acid:
A; Molecule type: DNA
A; Residues: 1-236 <NEH>
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A;Experimental source: strain MGAS256 isolate California unassigned phage
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, September
A;Accession: S18790
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A;Cross-references: EMBL:X61562; NID:g47299; PIDN:CAA43760.1; PID:g47300
A;Experimental source: strain MGAS251 isolate California unassignd phage
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, s
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Best Local (
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                                                                                                                                                                                                                                                                                                                       DQLLSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYSVEYYHLCYLCENAERSAC
                                                                                                                                                                                                                                                                                                                                              DQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLCENAERSAC
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Pred. No. 1.
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                                                             pyogenes
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predicted <MAT>
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A; Residues: 1-250 <JOH>
C; Superfamily: enteroto:
C; Keywords: exotoxin
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A; Residues: 1-236 <NEL>
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                                     121 ENAERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSPDIETNKKMVTAQELDYKVR
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R;Johnson, L.P.; L'Italien, J.J.; Schlievert, P.M. Mol. Gen. Genet. 203, 354-356, 1986
A;Title: Streptococcal pyrogenic exotoxin type A (scarlet A;Reference number: A26152; MUID:86284313; PMID:3526093
                                                                                                                                                                                                                                                                                                                                               C;Species: Streptococcus sp.
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999
C;Accession: A26152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R:Nelson, K.; Schlievert, P.M.; Selander, R.K.; Mu J. Exp. Med. 174, 1271-1274, 1991
A:Title: Characterization and clonal distribution A:Reference number: S18782; MUID:92044323; PMID:15
                                                                                                                                                                                                                                                                                                                                                                                           RESULT 5
A26152

Streptococcal pyrogenic exotoxin type A precursor -
N;Alternate names: scarlet fever toxin; SPE type A (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F;1-22/Domain: signal sequence (fragment) *status predicted <SIG>F;23-236/Product: exotoxin A (fragment) *status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Status: nucleic acid sequence not shown; translation not
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-Jan-1993 #sequence_revision 29-Jan-1993 #text_change
MENNKEVLKKMVFFVLMKFLGLTILPKGICSTRPKPSQLQRSNLVKTFKIYIFFMRVTLV
                                                                                               MENNKKYLKKMYFFYLYTFLGLTISQEYFAQQDPDPSQLHRSSLVKNLQNIYFLYEGDPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVRKYLTDNKQ
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83.7%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NID:g47303;
                                                                                                                                 Score 1075.5; DB 1;
Pred. No. 7.5e-73;
7; Mismatches 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1109; DB 2;
Pred. No. 2.3e-75;
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R; Huang, I.Y.; Bergdoll, M.S.

J. Biol. Chem. 245, 3511-3517, 1970
A; Title: The primary structure of staphylococcal enterotoxin B.
A; Reference number: A92064; MUID:71007901; PMID:5470820
A; Contents: annotation; chymotryptic peptides
R; Huang, I.Y.; Bergdoll, M.S.
J. Biol. Chem. 245, 3493-3510, 1970
A; Title: The primary structure of staphylococcal enterotoxin B.
A; Reference number: A92063; MUID:71007900; PMID:5470819
A; Contents: annotation; tryptic peptides
R; Schantz, E.J.; Roessler, W.G.; Wagman, J.; Spero, L.; Dunnery,
Biochemistry 4, 1011-1016, 1965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 6
ENSAB6
enterotoxin B precursor - Staphylococcus aureus
C;Species: Staphylococcus aureus
C;Date: 24-Apr-1984 #sequence_revision 15-Oct-1996 #text_change 18-Jun-1999
C;Accession: $27360, A92065; $27240; A01815
R;Jones, C.L.; Khan, S.A.
** "Ancteriol. 166, 29-33, 1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: EMBL:M11118; NID:g152999; PIDN:AAA88550.1; PID:g153000
A;Experimental source: strain S6
R;Huang, I.Y.; Bergdoll, M.S.
J. Blol. Chem. 245, 3518-3525, 1970
A;Title: The primary structure of staphylococcal enterotoxin B. III. The cyanogen bromin A;Reference number: A92065; MUID:71007902; PMID:5470821
A;Accession: A92065; MUID:71007902; PMID:5470821
A;Accession: A92065; NUD', 59-68, 'NE', 71, 'FDLIYL', 78-117, 119-127, 'N', 129, 'D', 131-132, 'ENT', A;Experimental source: strain S-6
A;Experimental source: strain S-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Title: Purification of staphylococcal enterotoxin B. A;Reference number: A90548; MUID:66035792; PMID:4953912 A;Contents: annotation; biological source of protein R;Alakhov, V.Y.; Klinsky, E.Y.; Kolosov, M.I.; Maurer-FQ Eur. J. Biochem. 209, 823-828, 1992
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                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                   C;Superfamily: enterotoxin B
C;Reywords: enterotoxin; extracellular protein; toxin
F;1-27/Domain: signal sequence #status predicted <SIG>
F;28-266/Product: enterotoxin B #status experimental <MAT>
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A; Residues: 28-42; 128-148 <ALA>
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  124 -----ERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYK 178
                                                 71 FLYFDLIYSIKDTKLGNYDNVRVEFKNKDLADKYKDKYVDVFGANYYYQCYFSKKTNDIN 130
                                                                                             71
                                                                                                                                            11
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                                                                                        LRSHDLIYNVSGP----NYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLCENA----
                                                                                                                                            ILIFALILVISTPNVLAESQPDPKPDELHKSSKFTGLMENMKVLYDDNHVSAINVKSIDQ 70
                                                                                                                                                                                     VLVTFLGLTIS-QEVFA--QQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQ 70
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                                                                                                                                                                                                                                    Score 576.5; DB 1;
Pred. No. 1.1e-35;
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                                                                                                                                                          C:Species: Staphylococcus aureus
C:Date: 10-Nov-1992 *sequence_revision 10-Nov-1992 *text_c
C:Date: 10-Nov-1992 *sequence_revision 10-Nov-1992 *text_c
C:Accession: A60114; B60114; A33866
R:Bohach, G.A.; Schllevert, P.M.
Infect. Immun. 57, 2249-2252, 1989
A:Title: Conservation of the biologically active portions
A:Reference number: A60114; MUID:89277549; PMID:2543637
A:Accession: A60114
                                                             A;Status: not compared with A;Molecule type: DNA A;Residues: 1-266 <BOH> A;Accession: B60114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: DNA
A;Residues: 1-266 <HOV>
A;Cross-references: GB:X51661; NID:g46570; PIDN:CAA35972.1; PID:g46571
C;Superfamily: enterotoxin B
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S11885
A; Molecule type: protein A; Residues: 28-66 < BOH2> R; Couch, J.L.; Betley, M
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C;Date: 19-Mar-1997 #sequence_revision 19-Mar-1997
C;Accession: S11885
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                                                                                                                                                                                                                                                                                                                                                     N; Alternate names: enterotoxin C-3
                                                                                                                                                                                                                                                                                                                                                                                enterotoxin C-2 precursor - Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R; Hovde, C.J.; Hackett,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  enterotoxin C3 -
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FLAHDLIYNISDKKLKNYDKVKTELLNEDLAKKYKDEVVDVYGSNYYVNCYFSSKDNVGK 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LRSHDLIYNVSG---PNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC--ENAER 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LDSNTSQIEVYLTTK 251
:|| :|||||||||||
VDSKDVKIEVYLTTK 264
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SHQTDKRKTCMYGGOTEHNGNQLDKYRSITVRVFEDGKNLLSFDVQTNKKKVTAQELDYL 190
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DSKSVKIEVHLTTK
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Betley, M.J
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Pred. No. 7.7e-34;
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J. Bacteriol. 171, 4507-4510, 1989
A;Title: Nucleotide sequence of the type C-3 staphylococcal enterotoxin gene suggests A;Reference number: A33866; MUID:89327174; PMID:2473979
A;Accession: A3386
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-266 < COU>
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                                                                                                                                                                                                                                                                                                                                                                                                                          enterotoxin C-1 precursor - Staphylococcus aureus
C,Species: Staphylococcus aureus
C,Species: 15-Nov-1984 *sequence_revision 05-Jan-1996 *text_change 18-Jun-1999
C;Accession: S06356; A01816
R,Bohach, G.A.; Schlievert, P.M.
Nol. Gen. Genet. 209, 15-20, 1987
                                                                                                                                                                                                                                                                                                                                                                      MOL. Gen. Genet. 209, 15-20, 1987
A;Title: Nucleotide sequence of the staphylococcal enterotoxin C1 gene and relatedness
A;Reference number: S06356; MUID:88038352; PMID:2823067
A;Accession: S06356
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J. Biol. Chem. 258, 6300-630
A;Title: The complete amino
A;Reference number: A01816;
A;Accession: A01816
                                                                                                             C;Superfamily: enterotoxin B
C;Keywords: enterotoxin
C;Keywords: enterotoxin
F;18-7/Domain: signal sequence #status predicted <SIG>
F;28-266/Product: enterotoxin C-1 #status experimental
                                                                                                                                                                                                                                                                                                                              A;Cross-references: EMBL:X05815; NID:g46566; PIDN:CAA29260.1;
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A; Residues: 1-266 <BOH>
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                                                                                                                                                                                A;Gene: entCl
δÃ
                                                                                               F;28-266/Product: enterotoxin C-1 *status exper
F;120-137/Disulfide bonds: *status experimental
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                                              Local Similarity
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11 MVF-FYLVTFLGLTISQEVFAQQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GKVTGGKTCMYGGITKHEGNHFDNGNLQNVLIRVYENKRNTISFEVQTDKKSVTAQELDI 188
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                                    Conservative
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                                                41.5%;
                                                                                                                                                                                                                                                                  acid sequence of Staphylococcal enterotoxin C-1 MUID:83213327; PMID:6189824
                                %; Score 548; 1
%; Pred. No. 1.,
51; Mismatches
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Pred. No. 1.2e-33;
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1.4e-33;
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A; Residues: 1-258 < KUR>
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A; Accession: G89968
        A33953
enterotoxin D precursor - Staphylococcus aureus
C;Species: Staphylococcus aureus
C;Date: 09-Mar-1990 #sequence_revision 09-Mar-1990 #text_change 15-Oct-1999
C;Accession: A33953
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Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
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R;Kuroda, M.; Ohta, T.; Uchiyama, I.; Baba, T.; Yuzawa, H.; Kobayashi, I.; Cui, ma, A.; Mizutani-Ui, Y.; Kobayashi, N.; Sawano, T.; Inoue, R.; Kaito, C.; Sekimi C.; Shiba, T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K. Lancet 357, 1225-1240, 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        extracellular enterotoxin type G precursor [imported] - Staphylococcus aurec C;Species: Staphylococcus aureus C;Date: 10-May-2001 #sequence_revision 10-May-2001 #text_change 22-Oct-2001 C;Accession: G89968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: GB:BA000018; PID:g13701617; PIDN:BAB42910.1; GSPDB:GN00149
A;Experimental source: strain N315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Title: Whole genome sequencing of meticillin-resistant Stapylococcus aureus
A;Reference number: A89758; MUID:21311952; PMID:11418146
                                                                                                                                                                                                                                             1 MKKLSTVIIILILEIVFHNMNYVNAQPDPKLDELNKVSDYKNNKGTMGNVMNLYTSPPVE 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KVRKYLTDNKOLYTNGPSKYETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GKVTGGKTCMYGGITKHEGNHFDNGNLQNVLIRVYENKRNTISFEVQTDKKSVTAQELDI 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ER----SACIYGGVTNHEGNHLEIP--KKIVVKVSIDGIQSLSFDIETNKKMVTAQELDX 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DKFLAHDLIYNISDKKLKNYDKVKTELLNEGLAKKYKDEVVDVYGSNYYVNCYFSSKDNV 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DQLRSHDLIYNVSG---PNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC--ENA 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TVDSKSVKIEVHLTTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TLDSNTSQIEVYLTTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LKKMVFFVLVTFLGLTISQEVFAQQDPDP--SQLHRSSLVKN----LQNIYFLYEGDPVT
                                                                                                                                                                                    NAE-----RSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQEL 175
                                                                                                    DYKVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEPE---FTQSKYLMIYK 232
                                                                                                                                                               DYKARHWLTKEKKLYEFDGSAFESGYIKFTEKNNTSFWFDLFPKKELVPFVPYKFLNIYG
DNKVVDSKSIKMEVFLNT
                                         DNETLDSNTSQIEVYLTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 enterotoxin
                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                      36.4%;
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                                                                                                                                                                                                                                                                                                                                                                                                                     46;
    257
                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 481; DB 2;
Pred. No. 1.3e-28;
                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 258;
                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kaito, C.; Sekimizu,
                                                                                                                                                                                                                                                                                                                                                                                                                            16;
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A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-260 <KUR>
A;Cross-references: GB:BA000018; PID:g13701623; PIDN:BAB42916.1; GSPDB:GN00149
A;Cross-reference: strain N315
C;Genetics:
A;Gene: seo
C;Superfamily: enterotoxin B
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         enterotoxin SeO [imported] - Staphylococcus aureus (strain N315)
C;Species: Staphylococcus aureus
C;Species: Staphylococcus aureus
C;Ante: 10-May-2001 #sequence_revision 10-May-2001 #text_change 22-Oct-2001.
C;Ancession: E89969
R;Kuroda, M; Ohta, T; Uchiyama, I.; Baba, T; Yuzawa, H; Kobayashi, I.; Cui, L.;
ma, A.; Mizutani-Ui, Y; Kobayashi, N.; Sawano, T; Inoue, R; Kaito, C; Sekimizu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C.; Shiba, T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K. Lancet 357, 1225-1240, 2001

A:Title: Whole genome sequencing of meticillin-resistant Stapylococcus aureus A:Reference number: A89758; MUID:21311952; pMID:11418146

A:Accession: E89969
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A:Title: Genetic and molecular analyses of the gene encoding staphylococcal enterotoxin A:Reference number: A33953; MUID:89359112; PMID:2549000
A:Accession: A33953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: GB:M28521; NID:g1492109; PIDN:AAB06195.1; PID:g758691
C;Superfamily: enterotoxin B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-258 <BAY>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Status: preliminary
                                                                                                                                                                                                                                                             Matches
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Best Local
7
                                                                                                                                                                                                                                                                               Local
                               117
                                                                                                       59
                                                                                                                 58 DPVTHENVKSV----DQLRSHDLIYN----VSG--PNYDKLKTELKNQEMATLFKDKNVD 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  231 YKDNETLDSNTSQIEVYLTTK 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119 INCYGGE-IDRTACTYGGVTPHEGNKLKERKKIPINLWINGVQKEVSLDKVQTDKKNVTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        115 HCYLCENAERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQ-SLSFD-IETNKKMYTA 172
                                                                                                                                                                                                                       ب
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    58
                                                                                                                                                                                                                                                                           Similarity
               IYGVYYKAHCH-GEHQVDTACTYGGVTPHENNKLSEPKNIGVAVYKDNVNVNTFIVTTDK
                                                                                         NRFT--TVKSIVSTTEKFLDFDLLFKSINWLDGISAEFKDLKVEFSSSAISKEFLGKTVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _
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                                                 IYGVEYYHLCYLCENAERSACIYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNK 167
                                                                                                                                                                                           MENNKKYLKKMYFFYLYTFLGLTISQEYFA-QQDPDPSQLHRSSLVK--NLQNIYFLYEG
                                                                                                                                                                   MKNSKVMLN--VLLLILNLIAICSVNNAYANEEDPKIESLCKKSSVDPIALHNINDDYIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QELDAQARRYLQKDLKLYNNDTLGGKIQRGKIEFDSSDGSKVSYDLFDVKGDFPEKQLRI 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QELDYKVRKYLTDNKQLYTNGP--SKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMI 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YSDNKTLSTEHLHIDIYLYEK 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DPVTHENVKSVDQLRSHDLIYN---VSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYY 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MKKENILIALLEFTSLVISPLNVKANENIDSVKEKELHKKSELSSTALNNMKHSY--ADK 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NPIIGENKSTGDQFLENTLLYKKFFTDLINFEDLLINENSKEMAQHFKSKNVDVYPIRYS 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LKKM-VFFVLVTFLGLTISQ-EVFAQQDPD---PSQLHR----SSLVKNLQNIYFLYEG
                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                         25.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25.7%;
                                                                                                                                                                                                                                                       42;
                                                                                                                                                                                                                                               Score 338; DB 2;
Pred. No. 5.6e-18;
42; Mismatches 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 340; DB 2; Length 258; Pred. No. 4e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches 102;
                                                                                                                                                                                                                                                 107; Indels
                                                                                                                                                                                                                                                                                   Length 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                               20;
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                                                                                                                                                                                                                                               Gaps
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                                                                               116
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 13
A89969
                                                                                                                                                                                                                                                                                                                                                                                                             A; Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: GB:BA000018; pID:g13701619; pIDN:BAB42912.1; A;Experimental source: strain N315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 1-136 < KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Title: Whole genome sequencing of meticillin-resistant Stapylococcus aureus A;Reference number: A89758; MUID:21311952; PMID:11418146 A;Accession: A89969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          enterotoxin YENT2 [imported] - Staphylococcus aureus (strain N315)
c;Speckes: Staphylococcus aureus
C;Date: 10-May-2001 #sequence_revision 10-May-2001 #text_change 22-Oct-2001
C;Accession: A89969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Status: preliminary
                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 67
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                                                                                                                                                                                                                                                                                                                                                                                                                              Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                      yent2
                                                                                                              237 LDSNTSQIEVYLTTK 251
                                                                                                                                                                                  179 VRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPE--PEFTQSKYLMIYKDNET 236
                                                                                                                                                                                                                                                                                   125
                                                                                                                                               62 VRNYLLKHKNLYEFNSSPYETGYIKFIEGSGHSFWYDLMPESGKKFYPTKYLLIYNDNKT
                                                                                                                                                                                                                           2 KKTCMYGGYTEHDGNQIDKNNSTDNSHNILIKVYENERNSLSFDIPTNKKNITAQEIDYK 61
                                                                                                                                                                                                                                                                                                                          67; Conserv
                                                                                                                                                                                                                                                                    RSACIYGGVTNHEGNHL-----EIPKKIVVKYSIDGIQSLSFDIETNKKMVTAQELDYK 178
                                                                         VESKSINVEVHLTKK 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KYLMIYKDNETLDSNTSQIEVYLTT 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KKVTAQELDIKVRTKLNNAYKLYDRMTSDVQKGYIKFHSHSEHKESFYYDLFYIKGNLPD 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KMVTAQELDYKVRKYLTDNKQLYTNGPSKYETGYIKF--IPKNKESFWFDEFPEPEFTQS 225
                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                   25.5%; Score 337; DB 2; 49.6%; Pred. No. 2.9e-18;
                                                                                                                                                                                                                                                                                                                        22:
                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                    38;
                                                                                                                                                                                                                                                                                                                                                       Length 136
                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSPDB:GN00149
                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                 121
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A;Gene: sep
C;Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                     c;Species: Staphylococcus aureus (strain N315)
C;Date: 10-May-2001 #sequence_revision 10-May-2001 #text_change 22-Oct-2001
C;Accession: C89984
R;Kuroda, M.; Ohta, T.; Uchlyama, I.; Baba, T.; Yuzawa, H.; Kobayashi, I.; Cma, A.; Mizutani-Ui, Y.; Kobayashi, N.; Sawano, T.; Inoue, R.; Kaito, C.; Selba, T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K.
Lancet 357, 1225-1240, 2001
A;Title: Whole genome sequencing of meticillin-resistant Stapylococcus aureu A;Reference number: A89758; MUID:21311952; PMID:11418146
A;Accession: C89984
                                                                                                                                                                                                        A;Molecule type: DNA
A;Residues: 1-260 <KUR>
A;Cross-references: GB:BA000018; PID:g13701743; PIDN:BAB43036.1; GSPDB:GN00149
A;Experimental source: strain N315
                                                                                                                                                                                                                                                                                                                                                        A;Status: preliminary
                                                                                                                                         enterotoxin
25.4%; Score 336; DB 2; 34.1%; Pred. No. 7.9e-18; tive 52; Mismatches 86;
                                                              Length 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sekimizu,
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Local

l Similarity 91; Conserv

Conservative

Indels

38;

Gaps

13;

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A;Molecule type: DNA
A;Residues: 1-258 <KUR>
A;Cross-references: GB:BA000018; PID:gl3701618; PIDN:BAB42911.1; GSPDB:GN00149
A;Experimental source: strain N315
C;Genetics:
A;Gene: sen
C;Superfamily: enterotoxin B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Accession: H89968. T.; Uchiyama, I.; Baba, T.; Yuzawa, H.; Kobayashi, I.; Cui, L.; RR;Kuroda, M.; Ohta, T.; Kobayashi, N.; Sawano, T.; Inoue, R.; Kaito, C.; Sekimizu, C.; Shiba, T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K.
Lancet 357, 1225-1240, 2001
A;Title: Whole genome sequencing of meticillin-resistant Stapylococcus aureus.
A;Reference number: A89758; MUID:21311952; PMID:11418146
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C;Species: Staphylococcus aureus
C;Species: 10-May-2001 *sequence_revision 10-May-2001 *text_change 22-Oct-2001
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DBRL_YEAST
VANY_ENTEC
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RESULT 1 SPEA_STRPY [2] SEQUENCE FROM N.A. MEDLINE-86284313; PubMed-3526093; MEDLINE-86284313; PubMed-3526093; Johnson L.P., L'Italien J.J., Schlievert P.M.; Johnson L.P., L'Italien J.J., Schlievert P.M.; Tstreptococcal pyrogenic exotoxin type A (scarlet related to Staphylococcus aureus enterotoxin B."; Con. Genet. 203:354-356(1986). SPEA_STRPY P08095; x-RAY CRYSTALLOGRAPHY (2.57 ANGSTROMS). MEDLINE-99094887; PubMed-9878045; Papageorgiou A.C., Collins C.M., Gutman D.M., Kline J.B., O'Brien S.M., Tranter H.S., Acharya K.R.; "Structural basis for the recognition of superantigen streptococcal pyrogenic exotoxin A (SpeAl) by MHC class II molecules and T-cell receptors."; Parkins L.D., Beres S.B., Campbell D.S., Smith T.M., Zhang Q., Kapur V., Daly J.A., Veasy L.G., Musser J.M.; "Genome sequence and comparative microarray analysis of serotype M18 group A Streptococcus strains associated with acute rheumatic fever outbreaks."; Proc. Natl. Acad. Sci. U.S.A. 99:4668-4673(2002). Smoot J.C., Barbian K.D., Van Gompel J.J., Smoot L.M., Chaussee Sylva G.L., Sturdevant D.E., Ricklefs S.M., Porcella S.F., Parkins L.D., Beres S.B., Campbell D.S., Smith T.M., Zhang Q., SEQUENCE FROM N.A. STRAIN-MGAS8232 / Serotype M18; MEDLINE-21927599; PubMed-11917108; Weeks C.R., Ferretti J.J.; "Nucleotide sequence of the type A streptococcal exotoxin (erythrogenic toxin) gene from Streptococcus pyogenes bact T12."; Streptococcus pyogenes, and Streptococcus pyogenes (serotype M18). Streptococcus pyogenes (serotype M18). Bacteria; Firmicutes; Lactobacillales; (SPE A). SPEA OR SPYM18_0393. 15-JUN-2002 (Rel. 41, Last annotation update) Exotoxin type A precursor (Scarlet fever toxin) (Erythrogenic toxin) 01-ANG-1988 (Rel. 08, Created) 01-JAN-1990 (Rel. 13, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation updat -1- DISEASE: THE STREPTOCOCCAL PYROGENIC TOXINS A, B, AND C ARE THE CAUSATIVE AGENTS OF THE SYMPTOMS ASSOCIATED WITH SCARLET FEVER, HAVE BEEN ASSOCIATED WITH STREPTOCOCCAL TOXIC SHOCK-LIKE SEQUENCE FROM N.A. MEDLINE-86166804; PubMed-3514452; Streptococcus. NCBI_TaxID=1314, 186103; Infect. Immun. $\vec{0}\cdot\vec{J}\cdot\vec{18}:9-21(1999)$. SUBUNIT: Binds to major histocompatibility complex class II beta 52:144-150(1986). STANDARD; PRT; 251 Streptococcaceae; ₹ pyogenes bacteriophage fever toxin) is z ò

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PIR; S29659; S29659.
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InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
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PRINTS; PR00277; STAPH_STREP_TOXIN_1; 1.
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MEDLINE=94203282; PubMed=8152483; JC., Stern L.J. Jardetzky T.S., Brown J.H., Gorga J.C., Stern L.J. Chi Y.I., Stauffacher C., Strominger J.L., Wiley "Three-dimensional structure of a human class II molecule complexed with superantigen."; Nature 368:711-718(1994).
This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content
                                                                                                  Li H., Llera A., Tsuchiya D., Leder L., Ysern X., Schliever Karjalainen K., Mariuzza R.A.; "Three-dimensional structure of the complex between a T cel beta chain and the superantigen staphylococcal enterotoxin immunity 9:807-816(1998).
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Huang I.-Y., Bergdoll M.S.;
"The primary structure of staphylococcal
cyanogen bromide peptides of reduced and
B, and the complete amino acid sequence."
J. Biol. Chem. 245:3518-3525(1970).
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MEDLINE=99096298; PubMed=9881971;
Li H., Llera A., Tsuchiya D., Leder L.,
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                                                                                                                                                                                                                                                                                                                                                                                                   20-JUN-96.
28-JAN-98.
27-MAY-98.
16-JUN-97.
15-OCT-97.
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120
56
69
118
118
1128
1133
1149
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185
233
246
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120 140
56 58
59 77
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186
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31436 MW;
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S27360.
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   2 700699, and N315; PubMed=11418146;
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DIN -> NID (IN REF. 3).
QTD -> EWT (IN REF. 3).
NG -> GN (IN REF. 3).
Y -> YY (IN REF. 3).
QE -> EQ (IN REF. 3).
D -> N (IN REF. 3).
D -> N (IN REF. 3).
D -> ND (IN REF. 3).
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Pred. No. 7.6e-37;
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N315),
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Nature 384:188-192(1996).

-I- SUBCELLULAR LOCATION: Secreted.
-I- DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION
STAPHYLOCOCCAL FOOD POISONING SYNDROME.
-I- SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL TOXIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kuroda M., Ohta T., Uchiyama I., Baba T., Yuzawa H., Koba Cui L., Oguchi A., Aoki K.-I., Nagaba I., Lian J.-Q., Ito Kanamori M., Matsumaru H., Maruyama A., Murakami H., Hoso Mizutani-Ui Y., Takahashi N.K., Sawano T., Inoue R.-I., K Sekimizu K., Hirakawa H., Kuhara S., Goto S., Yabuzaki J. Kanehisa M., Yamashita A., Oshima K., Furuya K., Yoshino Hattori M., Ogasawara N., Hayashi H., Hiramatsu K.,
                                                                                                                                                      Fields B.A., Malchiodi E.L., Li H., Ysern X., Stauf Schilevert P.M., Karjalainen K., Mariuzza R.A.; "Crystal structure of a T-cell receptor beta-chain superantigen.";
                                                                                                                                                                                                                                                                                                                                           enterotoxins.";
Mol. Gen. Genet. 220:329-333(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=90220508; PubMed=2325627;
Hovde C.J., Hackett S.P., Bohach G.A.;
"Nucleotide sequence of the staphylococcal enterotoxin C3 gene:
                                                                                                                                                                                                                                                                    MEDLINE=97064178;
                                                                                                                                                                                                                                                                                                                                                                                                    sequence comparison of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aureus.
                                                                                                                                                                                                                                                                                           X-RAY CRYSTALLOGRAPHY (3.5 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Whole genome sequencing of meticillin-resistant Staphylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lancet 357:1225-1240(2001).
FAMILY.
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                                                                                                                                                                                                                                                                                              COMPLEX
                                                                                                                                                                                                                                     Stauffacher C.V.,
                                                                                                                                                                                                                                                                                              HTIW
                                                                                                                                                                                  complexed with
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PDB; 1JCK; 12-NOV-97.

InterPro; IPR001961; Stap/Strep_toxin.
Pfam; pF01123; Stap_Strp_toxin; 1.
Pfam; pF02876; Stap_Strp_tox_C; 1.
Pfam; pF02879; BACTRLTOXIN.
PRINTS; PR00279; BACTRLTOXIN.
PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
Enterpotoxin; Toxin; Signal; Superantigen; 31
  DISULFID
                     SIGNAL
                                                                                     EMBL; AP003364; BAB58171.1; -.
EMBL; AP003135; BAB63097.1; -.
EMBL; X51661; CAA35972.1; -.
PIR; S11885; S11885.
                            Complete
                           proteome.
28
120
266
  Α,
 27
266 E
137
30671 MW;
              ENTEROTOXIN TYPE C-3.
  5ED8A32D11FFCA59 CRC64;
                                  3D-structure;
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126

VTGGKTCMYGGITKHEGNHFDNGNLQNVLVRVYENKRNTISFEVQTDKKSVTAQELDIKA ----SACIYGGVTNHEGNHLEIP--KKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKV FLAHDLIYNISDKKLKNYDKVKTELLNEDLAKKYKDEVVDVYGSNYYVNCYFSSKDNVGK LRSHDLIYNVSG---PNYDKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC--ENAER ILIFALILVISTPNVLAESQPDPMPDDLHKSSEFTGTMGNMKYLYDDHYVSATKVKSVDK

> 130 125 70

71

11

15 VLVTFLGLTIS-QEVFAQQDPD--PSQLHRSS-LVKNLQNIYFLYEGDPVTHENVKSVDQ

Query Match Best Local S Matches 117

il Similarity 117; Conserv

41.7%; Score 551.5; llarity 46.1%; Pred. No. 5.9. Conservative 46; Mismatches

.9e-35;

Indels Length

17;

Gaps

DB 1; 74;

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                                                       PIR; A6UL14; nout.

PDB; 1STE; 23-DEC-96.

PDB; 1STE; 23-DEC-96.

PDB; 1SE2; 08-mAR-96.

InterPro; IPR001961; Stap/Strep_toxin.

Pfam; PF01123; Stap_Strp_tox_C; 1.

Pfam; PF02876; Stap_Strp_tox_C; 1.

PRINTS; PR00279; BACTRLTOXIN.

PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.

PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1994
01-FEB-1994
15-JUN-2002
                                                                                                                                                                                                                             STAPHYLOCOCCAL FOOD
-I- SIMILARITY: BELONGS
FAMILY.
PIR: A60114; A60114.
                                                                                                                                                                                                                                                                                                                                                Schad E.M., Papageorgiou A.C., Svensson L.A., Acharya K.R. "A structural and functional comparison of staphylococcal enterotoxins A and C2 reveals remarkable similarity and dissimilarity.";
J. Mol. Biol. 269:270-280(1997).
     DISULFID
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Crystal structure of the superantigen enterong Staphylococcus aureus reveals a zinc-binding cructure 3:769-779(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPARISON OF STRUCTURE OF SEA AND SEC2.
MEDLINE-97334373; PubMed-9191070;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     enterotoxins."
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MEDLINE=96027099; PubMed=7582894;
Papageorgiou A.C., Acharya K.R., Shapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Conservation of the biologically active portions of staphylococcal
enterotoxins C1 and C2.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Staphylococcus aureus Bacteria; Firmicutes;
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P34071;
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Swaminathan S., Furey W.F. Jr., Pletci
Residues defining V beta specificity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x-RAY CRYSTALLOGRAPHY (2.7 ANGSTROMS).
MEDLINE=96022987; PubMed=7552730;
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                                                                                                                                                                                                                                                                                             for the toxin interaction with MHC class II. SUBCELLULAR LOCATION: Secreted.
DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE
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    28, Last sequence update)
    41, Last annotation update)
    C-2 precursor (SEC2).

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266
137
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                                                                                                                                                                                                                                                                               POISONING SYNDROME
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                     ENTEROTOXIN
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                     TYPE
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                                                                    Metal-binding;
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Best Local S
Matches 113
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01-JAN-1990
15-JUN-2002
 EMBL; X05815; CAA29260.1;
PIR; A01816; ENSAC1.
PIR; S06356; S06356.
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SPTTT
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SEQUENCE OF 28-266.

SECHMICH J.J., Spero L.;

SChMICH J.J., Spero L.;

SChMICH J.J., Spero L.;

SCHMICH J.J., Spero L.;

The complete amino acid sequence of staphylococcal enterotoxin CI
J. Biol. Chem. 258:6300-6306(1983).

-I- SUBCELLULAR LOCATION: Secreted.

-I- DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION

STAPHYLOCOCCAL FOOD POISONING SYNDROME.

-I- SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL TOXIN
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SEQUENCE
entities requires a license agreement (See http://www.or send an email to license@isb-sib.ch).
                                   modified and this statement
                                                                     This SWISS-PROT entry is copyright. It is produced through a collab
between the Swiss Institute of Bioinformatics and the EMBL outsi
the European Bioinformatics Institute. There are no restrictions
                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
MEDLINE-88038352; PubMed-2823067;
MEDLINE-88038352; PubMed-2823067;
Bohach G.A., Schhilevert P.M.;
*Nucleotide sequence of the staphylococcal enterotoxin relatedness to other pyrogenic toxins.*;
mol. Gen. Genet. 209:15-20(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Staphylococcus aureus Bacteria; Firmicutes;
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Pfam; PF01123; Stap_Strp_toxin; 1.

Pfam; PF02876; Stap_Strp_toxin.

Pfam; PF02876; Stap_Strp_toxin.

PROSTTE: PF02876; STAPH_STREP_TOXIN_1; 1.

PROSTTE: PS00279; STAPH_STREP_TOXIN_2; 1.

PROSTTE: PS00278; STAPH_STREP_TOXIN_2; 1.

Enterotoxin; Toxin; Signal; Superantigen.

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Kuroda M., Ohta T., Uchiyama I., Baba T., Yuzawa H., Kobayashi I., Cui L., Oguchi A., Aoki K.-I., Nagai Y., Lian J.-Q., Ito T., Kanamori M., Matsumaru H., Maruyama A., Murakami H., Hosoyama A., Mizutani-Ui Y., Takahashi N.K., Sawano T., Inoue R.-I., Kaito C., Sekimizu K., Hirakawa H., Kuhara S., Goto S., Yabuzaki J., Kanehisa M., Yamashita A., Oshima K., Furuya K., Yoshino C., Shib, Hattori M., Ogasawara N., Hayashi H., Hiramatsu K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Staphylococcus aureus.
Bacteria; Firmicutes; Bacillales; Staphylococcus
NCBI_TaxID=158878, 158879, 1280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Staphylococcus aureus (strain Mu50 / ATCC 700699), Staphylococcus aureus (strain N315), and
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                                                                                                                                                                                                                                                                                                                      "Identification and characterization of staphylococcal enterotoxin types G and I from Staphylococcus aureus.";
Infect. Immun. 66:3337-3348(1998).
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15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
SEQUENCE FROM N.A. MEDLINE-89359112; P Bayles K.W., Iandol "Genetic and molecu
                                                                                                                                                                                                                                                                                                                                  01-FEB-1991
01-FEB-1991
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PROSITE; PS00277; STAPH_STREP_TOXIN_1; FALSE_NEG.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
Enterotoxin; Toxin; Signal; Superantigen; Complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AF064773; AAC26660.1;
EMBL; AP003363; BAB57986.1;
EMBL; AP003135; BAB42910.1;
HSSP; P01552; 1SBB.
                                                                                                                                                                                                                                                                                                                                                                                                                                    ETXD_STAAU
P20723;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STAAU
                                                                                                                                                                                                       Staphylococcus aureus 
Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                       ENTD
                                                                                                                                                                                                                                                                                                      Enterotoxin
                                                                                                                                                                 NCBI_TaxID=1280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GRGVINSRQFLSHDLIFFIEYKSYNEVKTELENTELANNYKDKKVDIFGVPYFYTCIIPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HENYKSYDQLRSHDLIYNVSGPNYDKLKTELKNQEMATLFKDKNYDIYGYEYYHLCYLCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MKKLSTVIIILILEIVFHNMNYVNAQPDPKLDELNKVSDYKNNKGTMGNVMNLYTSPPVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNETLDSNTSQIEVYLTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DYKARHWLTKEKKLYEFDGSAFESGYIKFTEKNNTSFWFDLFPKKELVPFVPYKFLNIYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DYKVRKYLTDNKQLYTNGPSKYETGYIKEIPKNKESFWFDFFPEPE---FTQSKYLMIYK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAE----RSACIYGGYTNHEGNHLEIPKKIVVKYSIDGIQSLSFDIETNKKMYTAQEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LKKMVFFVLVTFLGLTISQEVFAQQDPDP--SQLHRSSLVKN----LQNIYFLYEGDPVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNKVVDSKSIKMEVFLNT
                                                                                                                                                                                                    Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       258
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116
                                                                                                                                                                                                                                                                                               (Rel. 17, Created)
(Rel. 17, Last sequence up
(Rel. 41, Last annotation
type D precursor (SED).
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   Iandolo J.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   258
133
                                                                         PubMed=2549000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29940 MW;
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                                                                                                                                                                                                       Bacillales; Staphylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 481;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ENTEROTOXIN TYPE
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          E2982101701D012C CRC64
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                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              258
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .2e-29;
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       encoding staphylococcal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 258;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            proteome
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
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Best Local S
Matches 92
             ETXE_STAAU
P12993;
                                                                                                                                                                                                                                                                                                                                                                                                     METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
Enterotoxin; Toxin; Signal; Superantigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M28521; AAB06195.1; -.
PIR; A33953; A33953.
HSSP; P13163; 1SXT.
                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                          VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                              METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sundstroem M., Abrahmsen L., Antonsson P., Mehindate K., Mourad W.,
Dohisten M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=ATCC 23235;
MEDLINE=97157473; PubMed=9003758;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             enterotoxin
J. Bacterio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A., AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacteriol.
                                                                                                           231
                                                                                                                                   178
                                                                                                                                                           173
                                                                                                                                                                                   119
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                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                          YKDNETLDSNTSQIEVYLTTK
                                                                                                                             QELDAQARRYLQKDLKLYNNDTLGGKIQRGKIEFDSSDGSKVSYDLFDVKGDFPEKQLRI
                                                                                                                                                    QELDYKVRKYLTDNKQLYTNGP--SKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMI 230
                                                                                                                                                                            INCYGGE-IDRTACTYGGVTPHEGNKLKERKKIPINLWINGVQKEVSLDKVQTDKKNVTV
                                                                                                                                                                                              HLCYLCENAERSACIYGGYTNHEGNHLEIPKKIVVKVSIDGIQ-SLSFD-IETNKKMVTA 172
                                                                                                                                                                                                                         NPIIGENKSTGDQFLENTLLYKKFFTDLINFEDLLINFNSKEMAQHFKSKNVDVYPIRYS
                                                                                                                                                                                                                                               DPVTHENVKSVDQLRSHDLIYN---VSGPNYDKLKTELKNQEMATLFKDKNVDIYGVEYY 114
                                                                                   YSDNKTLSTEHLHIDIYLYEK 258
                                                                                                                                                                                                                                                                        MKKFNILIALLFFTSLVISPLNVKANENIDSVKEKELHKKSELSSTALNNMKHSY--ADK 58
                                                                                                                                                                                                                                                                                               LKKM-VFFVLVTFLGLTISQ-EVFAQQDPD----PSQLHR-----SSLVKNLQNIYFLYEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR001961; Stap/Strep_toxin.
                                                                                                                                                                                                                                                                                                                                                                           114
258 AA;
                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D. .
                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       171:4799-4806(1989).
                                                                                                                                                                                                                                                                                                                                                                             29746 MW;
                                                                                                                                                                                                                                                                                                                                        25.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                              47;
                                                                                                                                                                                                                                                                                                                                                                                     ENTEROTOXIN TYPE D.
ZINC.
ZINC.
ZINC.
P -> A (IN STRAIN AT
                                                                                                                                                                                                                                                                                                                                        Score 340;
Pred. No. 5.
                         PRT;
                                                                                                          251
                                                                                                                                                                                                                                                                                                                                                                          -> A (IN STRAIN ATCC 23235).
4F7C6A28D42597FD CRC64;
                                                                                                                                                                                                                                                                                                                            Mismatches
                         257
                                                                                                                                                                                                                                                                                                                                      DB 1;
5.9e-19;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zinc.
                                                                                                                                                                                                                                                                                                                           102;
                                                                                                                                                                                                                                                                                                                                                 Length 258;
                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a collaboration
                                                                                                                                                                                                                                                                                                                          20;
                                                                                                                                                                                                                                                                                                                         Gaps
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Best Local !
                                                                                                                                                                                                                                                                                                                      Piam; pF01123; Stap_Strp_toxin; 1.
Pfam; pF01123; Stap_Strp_tox_C; 1.
PFam; pF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRITOXIN.
PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
                                                                                                                                                                                                                                                METAL
METAL
                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                            CHAIN
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; M21319; AAA26617.1; -.
PIR; A28179; A28179.
PDB; 1SEE; 15-OCT-95.
InterPro; IPR001961; Stap/Strep_toxin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          enterotoxins.";

Nat. Struct. Biol. 2:680-686(1995).

11 COFACTOR: Blads 1 zinc ion per subunit. The zinc ion is necess for the toxin interaction with MHC class II (By similarity).

12 SUBCELLULAR LOCATION: Secreted.

13 DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION STAPHYLOCOCCAL FOOD POISONING SYNDROME.

15 SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCCAL TOXIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JAN-1990
01-JAN-1990
15-JUN-2002
                                                                                                                                                                                                                                                                                                          SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Swaminathan S., Furey W.F. Jr., Pletcl Residues defining V beta specificity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-96022987; PubMed-7552730;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Cloning and nucleotide sequence of enterotoxin gene.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Couch J.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=88257005; PubMed=3384800;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A., AND SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Enterotoxin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3D-STRUCTURE MODELING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID-1280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteriol.
119 QC-AGGTPNKTACMYGGVTLHDNNRLTEEKKVPINLWIDGKQTTVPIDKVKTSKKEVTVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FAMILY.
                          116 LCYLCENAERSACIYGGYTNHEGNHLEIPKKIVVKVSIDGIQ-SLSFD-IETNKKMVTAQ
                                                              60
                                                                                        59
                                                                                                                                                10
                                                                                                                    N
                                                                                                                                                                             86;
                                                                                                                                                                                          Similarity
                                                       AIT-ENKESDDQFLENTLLFKGFFTGHPWYNDLLVDLGSKDATNKYKGKKVDLYGAYYGY
                                                                            PVTHENVKSVDQLRSHDLIYN---VSGPNYDKLKTELKNQEMATLFKDKNVDIYGVBYYH
                                                                                                                                       KMVFFVLVTFLGLTI------SQEVFAQQDPDPSQLHRSSLVKNLQNIYFLYEGD
                                                                                                              KKTAFILLLFIALTLTTSPLVNGSEKSEEINEKDLRKKSELQRNAL-SNLRQIYY-YNEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Firmicutes; Bacillales; Staphylococcus
                                                                                                                                                                                                                                 211
249
251
257
                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Soltis M.T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel. 13, Carated)
(Rel. 13, Last sequence update)
(Rel. 41, Last annotation update)
type E precursor (SEE).
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                                                                                                                                                                                                                        27
257
211
249
251
29358
                                                                                                                                                                                      23.3%;
                                                                                                                                                                                                                                  WW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Betley M.J.
                                                                                                                                                                           49;
                                                                                                                                                                                                                              ENTEROTOXIN TYPE E.
ZINC (BY SIMILARITY).
ZINC (BY SIMILARITY).
ZINC (BY SIMILARITY).
ZINC (BY SIMILARITY).
W; 27EDA94B97770CE3 CRC
                                                                                                                                                                                       Score 308;
Pred. No. 1
                                                                                                                                                                          Mismatches
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                                                                                                                                                                                      DB 1;
.6e-16;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            J.,. Sax M.;
staphylococcal
                                                                                                                                                                        98;
                                                                                                                                                                                                  Length 257;
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                                                                                                                                                                        Indels
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ETXA_STATA A
ETXA_STATA A
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AC P13163
DT 01-JAN
DT 01-JAN
DT 15-JUN
DT 15-JUN
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P13163;
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MEDLINE-87222293; PubMed-3584106;

Huang I.-Y., Hughes J.L., Bergdoll M.S., Schantz E.J.;

"Complete amino acid sequence of staphylococcal enterotoxin J. Biol. Chem. 262:7006-7013(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Enterctoxin type A precursor (SEA).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Staphylococcus aureus (strain MW2), and Staphylococcus aureus. Bacteria; Firmicutes; Bacillales; Staphylococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Enterotoxin type A ENTA OR MW1889
                                                                                                                                                                                                                                                                                     "The Co-crystal structure of staphylococcal enterotoxin type A with 2.7-A resolution. Implications for major histocompatibility complex class II binding.";
J. Biol. Chem. 271:32212-32216(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-22040717; PubMed-12044378;
Baba T., Takeuchi F., Kuroda M., Yuzawa
Nagai Y., Iwama N., Asano K., Naimi T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schad E.M., Zaitseva I., Zaitsev V.N., Dohlsten M., Schlievert P.M., Ohlendorf D.H., Svensson L.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS).
MEDLINE-95354648; PubMed-7628431;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-88086892; PubMed-3335483;
Betley M.J., Mekalanos J.J.;
                           COMPARISON OF STRUCTURE OF SEA AND SEC2 MEDLINE-97334373; PubMed-9191070;
                                                                                                                                                                                                         3D-STRUCTURE MODELING.
MEDLINE-96022987; PubMed-7552730;
                                                                                                                                                                                                                                                                                                                                                                                                                     Sundstroem M., Hallen D., Svensson A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                X-RAY CRYSTALLOGRAPHY (2.7 ANGSTROMS).
MEDLINE-97113025; PubMed-8943278;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             type A.";
EMBO J. 14:3292-3301(1995).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yamamoto K., Hiramatsu K.; "Genome and virulence determinants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-MW2;
                                                                                                                                                        Swaminathan S., Furey W.F. Jr., Pletch
Residues defining V beta specificity
                                                                                                                                                                                      Swaminathan
                                                                                                                                                                                                                                                                                                                                                                                               Abrahmsen L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Crystal structure of the superantigen
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                                                                                                          Struct. Biol. 2:680-686(1995).
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     Papageorgiou A.C.,
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     Svensson L.A.,
                                                                                                                                                        Pletcher J., Sax M.;
ficity in staphylococcal
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  Acharya K.R.;
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J. Mol. Biol. 269:270-280(1997).
-i- COFACTOR: Binds 1 zinc ion per subunit. The zinc ion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             METAL
CONFLICT
SEQUENCE
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PDB; 1SXT; 19-NOV-97.

PDB; 1SXT; 19-NOV-97.

PTRO011961; Stap/Strep_toxin.

Pfam; PF01123; Stap_Strp_toxin; 1.

Pfam; PF02876; Stap_Strp_tox_C; 1.

PRINTS; PR00279; BACTRLTOXIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced throubetween the Swiss Institute of Bioinformatics and the the European Bioinformatics Institute. There are its content to be a content to the content
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MISCELLANDOUS: THIS TOXIN SEEMS TO BE CODED BY A BACTERIOPHAGE.
SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL TOXIN
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                                                             KDNETLDSNTSQIEVYLTT 250
                                                                                                                                                                                                 ELDYKVRKYLTDNKQLYTNG--PSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIY
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                                                                                                                                    ELDLQARRYLQEKYNLYNSDVFDGKVQRGLIVFHTSTEPSVNYDLFGAQGQYSNTLLRIY
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REP_TOXIN_2; 1.
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RESULT 10 SPEC_STRPY

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                                                                                                                                                 EMBL;
EMBL;
                                                                                                                            EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ROUSSEL A., Anderson B.F., Baker H.M., Fraser J.D., Baker Crystal structure of the streptococcal superantigen SPB-C dimerization and zinc binding suggest a novel mode of inte with MHC class II molecules.",

Nat. Struct. Biol. 4:635-643(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-SF370 / ATCC 700294 / Serotype M1;

MEDLINB-21192684; PubMed-11296296;

Ferretti J.J., McShan W.M., Ajdic D.J., Savic D.J., Savic Primeaux C., Sezate S., Suvorov A.N., Kenton S., Lai H.S.,

Olan Y., Jia H.G., Najar F.Z., Ren O., Zhu H., Song L., Wh.

Yuan X., Clifton S.W., Roe B.A., McLaughlin R.;

"Complete genome sequence of an M1 strain of Streptococcus

Progenes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Molecular population genetic evidence of horizontal spread of ty alleles of the pyrogenic exotoxin C gene (speC) among pathogenic clones of Streptococcus pyogenes."; Infect. Immun. 60:3513:3517(1992).
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MEDLINE-88314303; PubMed-3045005;

Goshorn S.C., Schllevert P.M.;

"Nucleotide sequence of streptococcal Infect. Immun. 56:2518-2520(1988).
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STRAIN-T18P / MGAS 1585;
MEDLINE-92363541; PubMed-1500157;
Kapur V., Nelson K., Schlievert P.M.,
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[2]
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MEDLINE-97397352; PubMed-9253413;
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01-JAN-1990
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16-OCT-2001 (Rel.
16-OCT-2001 (Rel.
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DISEASE: THE STREPTOCOCCAL PYROGENIC TOXINS A, B, AND C ARE
THE CAUSATIVE AGENTS OF THE SYMPTOMS ASSOCIATED WITH SCARLET
FEVER, HAVE BEEN ASSOCIATED WITH STREPTOCOCCAL TOXIC SHOCK-LIKE
DISEASE AND MAY PLAY A ROLE IN THE EARLY EVENTS OF RHEUMATIC
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                                                                          1AN8;
                                                                                                  A30509; A30509
                                                                                                                       M35514; AAA27017.1; ALT_SEQ.
M97156; AAB59091.1;
M97157; AAB59092.1;
AEE006523; AAK33664.1; -
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                                             3; 29-APR-98.
: IPR001961; S
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               31961; Stap/Strep_toxin.
Stap_Strp_toxin; 1.
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Lai H.S., Li
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RESULT II
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AC Q9X5CB
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DT 18-OCT
C STRAIN
RC STRAIN
RC STRAIN
RA PICHE
RT SEQUEN
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RX MEDLIN
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RA PICHE
RA CIAN Y
RA YUAN X
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RL PICC
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Best Local
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16-OCT-2001
16-OCT-2001
15-JUN-2002
                                                                               Ferretti J.J., McShan W.M., Ajdic D.J., Savic D.J., Savic G. Primeaux C., Sezate S., Suvorov A.N., Kenton S., Lai H.S., Qian Y., Jia H.G., Najar F.Z., Ren Q., Zhu H., Song L., Whi Yuan X., Clifton S.W., Roe B.A., McLaughlin R.; "Complete genome sequence of an M1 strain of Streptococcus Proc. Natl. Acad. Sci. U.S.A. 98:4658-4663(2001).

-i- SUBUNIT: Binds to major histocompatibility complex class
                                                                                                                                                                                                                                                Streptococcus pyogenes.";
J. Exp. Med. 189:89-102(1999).
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CONFLICT
SEQUENCE
                                                                                                                                                                                           STRAIN-SF370 / ATCC 700294 / Serotype
MEDLINE-21192684; PubMed-11296296;
                                                                                                                                                                                                                                                                            MEDLINE-99093428; PubMed-9874566;
Proft T., Moffatt S.L., Berkahn C.J.,
"Identification and characterization
                                                                                                                                                                                                                                                                                                                                                                                                                               SPEH OR SPY1008
                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM
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                          SUBCELLULAR LOCATION: Secreted.
DISEASE: Mitogenic for human pe
SIMILARITY: BELONGS TO THE STAP
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(Rel. 40, Last sequence u.
(Rel. 41, Last annotation
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27371 MW;
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                           human peripheral blood lymphocytes
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Exotoxin type G pre
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STRAIN-SF370 / ATCC 700294 / Serotype M1
MEDLINE-21192684; PubMed-11296296;
Ferretti J.J., McShan W.M., Ajdic D.J.,
Primeaux C., Sezate S., Suvorov A.N., Ke
                                                                                                                                                                                                                                                                                 STRAIN-M1;
MEDLINE-99093428; PubMed-9874566;
Moffatt S.L., Berkahn C.J.,
                                                                                                                                                                                                                                                          Proft T., Moffatt S.L., Berkahn C.J. "Identification and characterization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
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Pfam; PF02876; Stap_Strp_tox_C; 1.
PROSITE; PS00277; STAPH_STREP_TOXIN_1;
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HSSP; P13163; 15XT.
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an email to license@isb-sib.ch).
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PROSITE: PS00278; STAPH_STREP_TOXIN_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001961; Stap/Strep_toxin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUBUNIT: Binds to major histocompatibility
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55; Conserv
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                       toxin-1
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(Rel. 06, Last sequence update)
(Rel. 41, Last annotation update)
syndrome toxin-1 precursor (TSST-
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27262 MW;
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Pred. No. 9.
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9.3e-06;
nes 81;
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                                                                                          Novick R.P.,
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Acharya K.R., Passarung-
Brehm R.D., Tranter H.S.;
*Structural basis of superantigen
*Structural basis of superantigen
                                                                                                                                                                                                                                                                                                                                                                     "Schlievert P.M., Ohlendorf D.H.;
"Structures of five mutants of toxic shock reduced biological activity.";
Biochemistry 37:7194-7202(1998).
-!- SUBCELLULAR LOCATION: Secreted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Prasad G.S., Radhakrishnan R., Mitchell D.T., Earhart C.A., 
Dinges M.M., Cook W.J., Schlivert P.M., Ohlendorf D.H.; 
"Refined structures of three crystal forms of toxic shock s 
toxin-1 and of a tetramutant with reduced activity."; 
Protein Sci. 6:1220-1227(1997).
                                                                                                                                                                                                                                                         the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-97337442;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-96319751;
Papgeorgiou A.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biochemistry
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nature 367:94-97(1994).
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MEDLINE-94150598; PubMed-8107781;
        Pfam; PF01123; Stap_Strp_toxin; Pfam; PF02876; Stap_Strp_tox_C; PRINTS; PR01501; TOXICSSTOXIN. PR0517E; PS00277; STAPH_STREP_TC
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PDB;
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DISEASE: THIS TOXIN IS RESPONSIBLE
                                                                                                                                                                                                                                                                                                                                         SIMILARITY:
                                                                                                                                                                                                                                                                                                                                                    SHOCK SYNDROME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  refined crystal structure of toxic
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                                                                                                                       3TSS;
4TSS;
5TSS;
1QIL;
2QIL;
1AW7;
                                                                                                                                                                                                                                                                                           SWISS-PROT entry is copyright. It is produced through sen the Swiss Institute of Bioinformatics and the EM
                                                                                         1TS2;
1TS3;
1TS4;
                                                                                                                                                                                            2TSS;
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                                                                                                                                                                                                                                                  requires a license agreement
                                                   IPR001961; Stap/Strep_toxin.
IPR003999; Staph_toxin.
                                                                                                                       24-DEC-97.
24-DEC-97.
24-DEC-97.
24-DEC-97.
12-AUG-97.
12-AUG-97.
112-AUG-97.
                                                                                                                                                                                                                                       email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of toxic shock syndrome ry 32:13761-13766(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Earhart C.A.,
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                                                                                                               -DEC - 98
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=9194182;
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 STAPH_STREP_TOXIN_1;
STAPH_STREP_TOXIN_2;
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                                   action inferred
toxin-1.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 toxin 1.";
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  FALSE_NEG.
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Best Local
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SIGNAL
CHAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAY-1992 (Rel. 22, Created)
01-MAY-1992 (Rel. 22, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Intracellular protein transport protein USO1.
USO1 OR INTI OR YDL058W.
           This
                                                                                                                                                  Bai Y., Symington L.S.;
Submitted (MAY-1996) to
                                                                                                                                                                                                  Submitted (FEB-1993)
                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                   Saccharomyces cerevisiae (Baker's yeast)
Eukaryota; Fungi; Ascomycota; Saccharomyc
                                                                                                                                                                           SEQUENCE OF 1-8 FROM N.A.
                                                                                                                                                                                                                  Kendrick K.E.
                                                                                                                                                                                                                           Hostetter M.K., Herman
                                                                                                                                                                                                                                        SEQUENCE OF 782-1790 FROM N.A.
                                                                                                                                                                                                                                                                                                               STRAIN=XZ18U-14;
MEDLINE=91185402; PubMed=2010462;
                                                                                                                                                                                                                                                                                                                                          STRAIN-X2180-la;
                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                         Saccharomycetales;
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P25386;
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                                                                                                                                                                                                                                                                                         "A cytoskeleton-related gene, usol,
                                                                                                                                                                                                                                                                                                    Yamasaki M.;
                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                Cell
                                   COILED COILS, MAY FORM FILAMENTOUS STRUCTURES IN THE SIMILARITY: BELONGS TO THE VDP/USO1/YBL047C FAMILY.
                                                            MEMBRANES. PROBABLY PRESENT ON VESICLES OPERATIONAL BETWEEN AND THE GOLGI COMPLEX.

DOMAIN: THE RODLIKE TAIL SEQUENCE IS HIGHLY REPETITIVE, DOMAIN: THE RODLIKE TAIL SEQUENCE IS HIGHLY REPETITIVE, OF AN HEPTAPEPTIDE REPEAT PATTERN CHARACTERISTIC OF ALPHON
                                                                                               SUBCELLULAR LOCATION: CYTOPLASMIC. ASSOCIATED WITH MEMBRANES. PROBABLY PRESENT ON VESICLES OPERATIONAL
                                                                                                                          COMPLEX.
                                                                                                                                      FUNCTION: REQUIRED
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56; Conserv
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                                                                                                                                                                                                                                                                 transport in Saccharomyces
Biol. 113:245-260(1991).
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NOT entry is copyright. Swiss Institute of Bio
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26306 MW;
                                                                                                                                                                                                                                                                                                                                                                                        Ascomycota; Saccharomycotina; Saccharomycetes; Saccharomycetaceae; Saccharomyces.
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                                                                                                                                       PROTEIN TRANSPORT 1
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pht. It is produced through a collaboration Bioinformatics and the EMBL outstation -
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Best Local :
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Q08554;
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Q1-NOV-1997
16-OCT-2001
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                                                                                                                                                             Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
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MEDLINE=93283249; PubMed=8507556;
Theis D.G., Koch P.J., Franke W.W.;
"Differential synthesis of type 1 and type 2 desmocollin mRNAs
                                                                      SEQUENCE FROM N.A. TISSUE-Foreskin;
                                                                                                                                                                                                   Homo sapiens (Human)
                                                                                                                                                                                                                                                   Desmocollin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CONFLICT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
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A38455; A38455.
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cPro; IPR002017;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LEKSKEMMKKLESTIESNETELKSSMETIRKSDEKLEQSKKSAEEDIKNLQH----EKSD
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(Rel.
1A/1B
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                                                                                                                                                                                                                                          35, Created)
35, Last sequence update)
40, Last annotation update)
precursor (Desmosomal glycoprotein 2/3) (DG2/DG3).
                                                                                                                                                             Primates;
                                                                                                                                                                                 Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8.0%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ITT; Golgi stack; Cytoskeleton; Coiled coil.
GLOBULAR HEAD.
COILED COIL (POTENTIAL).
CHARGED (HYPER-HYDROPHILIC).
DISPENSABLE FOR THE PROTEIN FUNCTION.
ASP/GLU-RICH (ACIDIC).
G -> E (IN REF. 2).
E -> K (IN REF. 2).
V -> I (IN REF. 2).
V -> I (IN REF. 2).
V -> S (IN REF. 2).
G -> S (IN REF. 2).
I -> V (IN REF. 2).
G -> S (IN REF. 2).
D -> DEEDDEE (IN REF. 2).
D -> DEEDDEE (IN REF. 2).
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Pred. No. 3.
                                                                                                                                                        Craniata; Vertebrata; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ed. No. 3.6
Mismatches
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                                                                                                                                                             Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
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                                                                                                                                                                                 Euteleostomi;
                                                                                                                                                          Homo
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      THE TRANSPORTED TO THE TRANSPORT OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; 234522; CAA84279.1;
EMBL; 234522; CAA84278.1;
EMBL; 2732925; CAA51428.1;
EMBL; X72925; CAA51429.1;
HSSP; P15116; INCJ.
    CARBOHYD
CARBOHYD
                                             DOMAIN
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DOMAIN
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DOMAIN
                                                                                                                                                                                                                                                                                                                              PROSITE; PS00232; CADHERIN_1; PS50268; CADHERIN_2;
                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00028; cadherin; PRINTS; PR00205; CADHERI SMART; SM00112; CA; 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
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King I.A., Arnemann J., Spurr N.K.,
"Cloning of the CDNA (DSC1) coding
its assignment to chromosome 18.";
                                                                                                                                                        DOMAIN
                                                                                                                                                                                 TRANSMEM
                                                                                                                                                                                                                                               PROPEP
                                                                                                                                                                                                                                                                                          Cytoskeleton;
                                                                                                                                                                                                                                                                                                              Cell adhesion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MIM; 125643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genew; HGNC:3035; DSC1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or send an email to license@isb-sib.ch)
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MEDLINE-91323543; PUBMEd=171860;
King I.A., Magee A.I., Rees D.A., Buxto
"Keratinization is associated with the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genomics
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zimbelmann R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL).
SIMILARITY: CONTAINS 5 CADHERIN DOMAINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN: CALCIUM MAY BE BOUND BY THE CADHERIN-LIKE REPEATS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NODE AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR002126; Cadherin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TONGUE
                                                                                                                                                                                                                                                                                          Glycoprotein; Transmembrane; Calcium-binding; Alternative;
                                                                                                                                                                                                                                                                                                                                                                                                   CADHERIN.
    134
894
691
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CYTOPLASMIC (POTENTIAL).
CADHERIN 1.
CADHERIN 2.
CADHERIN 3.
  CADHERIN
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                                                                  CADHERIN
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                                                                                                                                                                                                   (POTENTIAL).
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Signal;

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related to the desmosomal cadherins DGII/III."; FEBS Lett. 286:9-12(1991).
FUNCTION: COMPONENT OF INTERCELLULAR DESMOSOME JUNCTIONS: INVOLVED IN THE INTERACTION OF PLAQUE PROTEINS AND INTERMEDIATE FILAMENTS
MEDIATING CELL-CELL ADHESION. MAY CONTRIBUTE TO EPIDERMAL CELL
POSITIONING (STRATIFICATION) BY MEDIATING DIFFERENTIAL
ADHESIVENESS BETWEEN CELLS THAT EXPRESS DIFFERENT ISOFORMS. LINKED
TO THE KERATINIZATION OF EPITHELIAL TISSUES.
SUBCELLULAR LOCATION: Type I membrane protein.
ALTERNATIVE SPLICING.
ALTERNATIVE SPLICING.
TISSUE SPECIFICITY: STRONGLY EXPRESSED IN EPIDERMIS, LESS IN LYMPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stratified epithelia.";
J. Dev. Biol. 37:101-110(1993).
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h the expression
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ch complet	218 350	189 293	152 233	94 186	34 138	Query Match Best Local S Matches 51	VARSPLIC VARSPLIC CONFLICT SEQUENCE
Search completed: June 23, 2003, 16:13:00 Job time : 11.7747 secs	218 PEPEFTQSKYLMIYKDN 234 : : : : 350 NPPSFTETSYVTEVEEN 366	LYTNGPSKYET	SIDGIQSLSFD : : EDDNDNAPYFE	NQEMAT LFK : YIEKDTGDIFC	PDPSQLHRSSL : : PIPASLMENSL	Query Match 7.9% Best Local Similarity 19.8% Matches 51; Conservative	830 8 841 8 132 1 894 AA;
, 2003, 16	WIYKDN 234 :: CEVEEN 366	SYIKFI 	HRVTIFTVPE	DKNVDIYGVE ::: !RSIDREKYE	VKNLQNIYFI :: 3PFPQHV	··	840 H 13894 H 132 T 100044 MW;
5:13:00	G	189 LYTNGPSKYETGYIKFIPKNKESFW	152 SIDGIQSLSFDIETNKKMYTAQELDYKYRKYLTDNKQ 188	94 NQEMATLFKDKNVDIYGVEYYHLCYLCENAERSACIYGGVTNHEGNHLEIPKKIVVKV 151 	34 PDPSQLHRSSLVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGPNYDKLKTELK 93 :	; Score 105; DB 1; Length 894; ; Pred. No. 1.7; 44; Mismatches 78; Indels 84; Gaps	830 840 KVYLCGQDEEH -> ESIRGHTLIKN (IN ISOFORM 1B). 841 894 MISSING (IN ISOFORM 1B). 132 132 T -> S (IN REF. 3). 894 AA; 100044 MW; 44BA33038699E3E1 CRC64;
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Q54696
Q985z4
Q938p4
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RESULT P97163

P97163; PRELIMINARY; PRT; 236 AA. P97164; P97165; P97167 P

Type A exotoxin precursor (Fragment).

45	44	43	42							35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
•	٠	٠	245.5	246.5	250.5	251.5	252.5	263	264	285.5	290.5	299.5	305.5	307	307.5	311.5	336	337	338	339.5	469	471	471	481	512.5	531.5	531.5	536.5
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Ļ	Q91921 streptococc	Q8rr75 staphylococ			Q93cc5 staphylococ	w		CO.	~	ū	Q8rr76 staphylococ	085217 staphylococ		Q931m4 staphylococ	CO.	4			6			Q9ezm3 staphylococ	Q9znf2 staphylococ	O85382 staphylococ	Q936g4 staphylococ	8	Q54739 streptococc	Q54971 streptococc

ALIGNMENTS

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FTTTT
InterPro; IFR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox.C; 1.
PFAM; PF02876; Stap_Strp_tox.C; 1.
PRINTS; PR00279; BACTRITOXIN.
PROSITE; PS00277; STAPH_STREP_TOXIN_2; 1.
Signal.
NON_TER 1 1
SIGNAL <1 22 POTENTIAL.
                                                                                                                                      "Characterization and clonal distril gene encoding pyrogenic exotoxin A Streptococcus pyogenes.";
J. Exp. Med. 174:1271-1274(1991).
EMBL; X61556; CAA43754.1;
EMBL; X61557; CAA43758.1;
EMBL; X61558; CAA43758.1;
EMBL; X61558; CAA43753.1;
EMBL; X61558; CAA43753.1;
EMBL; X61558; CAA43757.1;
EMBL; X61559; CAA43757.1;
EMBL; X61559; CAA43752.1;
EMBL; X61559; CAA43752.1;
EMBL; X61559; CAA43752.1;
EMBL; X61559; CAA43752.1;
                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-MGAS156, AND MGAS500;
STRAIN-MGAS156, AND MGAS500;
MEDLINE-92044323; PubMed-1940804;
MEDLINE-92044323; PubMed-1940804;
Nelson K., Schlievert P.M., Selander R.K., Musser J.M.;
Nelson K., Schlievert P.M., Selander R.K., Musser J.M.;
Nelson K., Schlievert D.M., Schliebert toxin) 1
                                                                                                                                                                                                                                                                                                                                                                                                          Streptococcaceae; Streptococcus.
NCBI_TaxID=1314;
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J. Exp. Med. 174:1271-1274(1991).
EMBL; X61569; CAAA3767.1; -.
EMBL; X61572; CAAA3776.1; -.
EMBL; X61578; CAAA3766.1; -.
EMBL; X61570; CAAA3768.1; -.
EMBL; X61571; CAAA3769.1; -.
HSSP; P08095; IBIZ.
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SEQUENCE
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Streptococcaceae; Streptococcus.
NCBI_TaxID-1314;
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Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF0276; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
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                                                                                                                                                                                                                                                                                                                                                SPEA.
                                                                                                     SIGNAL
                                                                                                                                                                                                                                                          Nelson K., Schlievert P.M., Selander R.K., Mu
"Characterization and clonal distribution of
                                                                                                                                                                                                                                                                                                                                     Streptococcus pyogenes
                                                                                                                                                                                                                                                                                                                                                       Type A exotoxin precursor (Fragment).
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STAPH_STREP_TOXIN_2;
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                                        Score 1239; DB 2;
Pred. No. 4.7e-81;
l; Mismatches 1;
                                                                                          POTENTIAL.
TYPE A EXOTOXIN.
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t fever toxin) i
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Query Match
Best Local Sim
Matches 234;
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Streptcoccus pyogenes.";

J. Exp. Med. 174:1271-1274(199

EMBL; X61563; CAA43760.1; -

EMBL; X61567; CAA43761.1; -

EMBL; X61567; CAA43765.1; -

EMBL; X61564; CAA43769.1; -

EMBL; X61564; CAA43763.1; -

EMBL; X61565; CAA43764.1; -

EMBL; X61565; CAA43764.1; -
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01-NOV-1996 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
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Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
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Streptococcaceae; Str
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                                                                                                                                                                                                                                                                  HSSP;
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                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-92044323;
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                                  KKMVFFVLVTFLGLTISQEVFAQQDPDPSQLHRSSLVKNLQNIYFLYEGDPVTHENVKSV
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IYGGVTNHEGNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVRKYLTDNKQ
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STAPH_STREP_TOXIN_2;
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01-MAR-2002 (TrEMBLrel.
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SEQUENCE
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Pfam; PF02876; Stap_Strp_tox_C: 1.
PRINTS; PR00279; BAGTRIFOXIN.
PR0SITE; PS00277; STAPH_STREP_TOXII
PROSITE; PS00278; STAPH_STREP_TOXII
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Bessen D.E., Izzo M.W., Fiorentin
Hollingshead S.K., Beall B.;
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                                                         Type A exotoxin precursor (Fragment).
SPEA.
Streptococcus pyogenes.
Bacteria; Firmicutes; Bacillus/Clostridium
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222 AA;
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[1]
SEQUENCE FROM N.A.
STRAIN-MGAS156;
STRAIN-MGAS156;
Bessen D.E., IZZO M.W., Florentino T.R., Ca
Bessen D.E., IZZO M.W., Florentino T.R., Ca
Hollingshead S.K., Beall B.;
"Genetic Inhkage of extoxin alleles and en
tropism in group A streptococci.";
J. Infect. Dis. 179:627-636(1999).
EMBL: AMD21315.1; "-
HSSP; P08095; 1B1Z. Stap/Strep_toxin.
InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nelson K., Schlievert P.M., Selander R.K., Musser "Characterization and clonal distribution of four gene encoding pyrogenic exotoxin A (scarlet fever streptococcus pyogenes."
J. Exp. Med. 174:1271-1274(1991).
EMBL; X61573; CAA43771.1; -
HSSP; P08095; 1B1Z.
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Pfam; PF01123; Stap_Strp_toxin; 1.

Pfam; PF02876; Stap_Strp_tox_C; 1.

PRINTS; PR00279; BACTRIFOXIN.

PROSITE; PS00277; STAPH_STREP_TOXIN_1;

PROSITE; PS00278; STAPH_STREP_TOXIN_2;
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                                                                                                                                                                                                                                                                                                            Q9S5Z4 PRELIMINARY;
Q9S5Z4;
Q1-MAY-2000 (TrEMBLrel. 13,
Q1-MAY-2000 (TrEMBLrel. 13,
Q1-MAR-2002 (TrEMBLrel. 20,
                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                Streptococcaceae; NCBI_TaxID=1314;
                                                                                                                                                                                                                                                   Streptococcus pyogenes.
Bacteria; Firmicutes; Bacillus/Clostridium
                                                                                                                                                        MEDLINE-99137798; PubMed-9952369;
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23
236
236 AA;
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Last sequence update)
Last annotation updat
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Pred. No. 8.9e-7
4; Mismatches
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TYPE A EXOTOXIN.
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alleles of the spear
toxin) in
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Best Local
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Best Local S
Matches 198
                                                                                                                                                                                                                                                                                                                                                                                                                           *Presence of streptococcal pyrogenic exotoxin A and C ge isolates of group G Streptococci.*;

Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases EMBL; AY049745; AAL06066 1;

EMBL; AY049745; AAL06066 1;

InterPro: IPR001961; Stap/Strep_toxin.

Pfam; PF0113; Stap_Strp_toxin; 1.

Pfam; PF0113; Stap_Strp_toxin; 1.

PROSITE; PS00277; STAPH_STREP_TOXIN_1; UNKNOWN_1.

PROSITE; PS00278; STAPH_STREP_TOXIN_2; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                          NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q938P4;
01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptococcus equisimilis.

Bacteria; Firmicutes; Bacillus/Clostridium

Streptococcaceae; Streptococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptococcaceae;
NCBI_TaxID=119602;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pyrogenic exotoxin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kalla A., Bessen D.E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q938P4
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NON_TER
SEQUENCE
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7
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                                                                                                                                                                                                  Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YIKEIPKNKESEWFDFFPEPEFTQSKYLMIYKDNETLDSNTS 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LEIPKNILVKVSIDGIQSLSFDIETSKKMYTAQELDYKVRKHLTDNNQLYTNGPSKYETG
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PS00278;
                                                                                                                                                                                                                                                                                                                                                                                 222
222 AA;
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222 AA;
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                                                                                                                                                                                                                                                                                                                                                                                 222
25884 MW;
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STAPH_STREP_TOXIN_2; 1.
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25884 MW;
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89.2%;
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19, Last sequence up
20, Last annotation
                                                                                                                                                                                                                                                                                         ; Score 1054; D; Pred. No. 7e-6
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Pred. No. 7e-68;
""amatches 12;
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                                                                                                                                                                                                                                                                                                               4; DB 2;
7e-68;
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ID 2067
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Best Local s
Matches 115
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                                                                                                     01-NOV-1996
01-NOV-1996
01-MAR-2002
                      Staphylococcus aureus Bacteria; Firmicutes; Staphylococcus.
                                                                                                                                                                          Q53678
Q53678;
                                                                                 Enterotoxin (Fragment).
      NCBI_TaxID-1280;
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                                                                                                   (TrEMBLrel. (TrEMBLrel. (TrEMBLrel. (
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EMBB: AF717235: AAG29599.1;

HSSP: P34071; ISE2.

InterPro; IPR001961; Stap/Strep_toxin.

Pfam: PF01123; Stap_Strp_toxin; 1.

Pfam: PF01123; Stap_Strp_toxin; 1.

Pfam: PF02876; Stap_Strp_tox_C; 1.

PRINTS; PR00279; BACTRLTOXIN.

PROSITE: PS00277; STAPH_STREP_TOXIN_1; 1.

PROSITE: PS00278; STAPH_STREP_TOXIN_2; 1.

PROSITE: PS00278; STAPH_STREP_TOXIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=20566668; PubMed=11114901; Fitzgerald J.R., Monday S.R., Foster T.J., Bohach G.A., Ha Fitzgerald J.R., Monday S.R., Foster T.J., Bohach G.A., Ha Meaney W.J., Smyth C.J.; "Characterization of a putative pathogenicity island from Staphylococcus aureus encoding multiple superantigens."; J. Bacteriol. 183:63-70(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9F0L6 PRELIMINARY; PRT; 271 AA.
Q9F0L6;
Q1-MAR-2001 (TrEMBLrel. 16, Created)
Q1-MAR-2001 (TrEMBLrel. 16, Last sequence update)
Q1-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Staphylococcal enterotoxin C-bovine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Staphylococcus
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Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=1280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TLDSNTSQIEVYLTTK 251
|:|| :||!:||||
TVDSKSVKIEVHLTTK 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                               KARNFLINKKNLYEFNSSPYETGYIKFIENNGNTFWYDMMPAPGDKFDQSKYLMMYNDNK
                                                                                                                                                                                                                        KVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNE
                                                                                                                                                                                                                                                                   GKVTGGKTCMYGGITKHEGNHFDNGKLQNVLIRVYENKRNTISFEVQTDKKSVTAQELDI
                                                                                                                                                                                                                                                                                            ER----SACIYGGVTNHEGNHLEIPK--KIVVKVSIDGIOSLSFDIETNKKMVTAQELDY
                                                                                                                                                                                                                                                                                                                                                      DKFLAHDLIYNISDKKLKNYDKVKTELLNEDLAKKYKDEVVDVYGSNYYVNCYFSSKDNV
                                                                                                                                                                                                                                                                                                                                                                                                                                       LIFALILVLFTPNVLAE---SQPDPTPDELHKASKFTGLMENMKVLYDDRYVSATKVKSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MVF-FVLVTFLGLTISQEVFAQQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSV
                                                                                                                                                                                                                                                                                                                                                                        DOLRSHDLIYNVSG---PNYDKLKTELKNQEMATLFKDKNVDIYGVBYYHLCYLC--ENA 123
  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
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44.9%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 555; DB
Pred. No. 3.6e
51; Mismatches
  PRT;
  239
⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
.6e-32;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 271;
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Bacillus/Clostridium group; Bacillales;

01,

Created) Last sequ Last anno

sequence update) annotation updat

update)

14;

Gaps

6,

251

197 121 139 61

181

237

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Query Match
Best Local S
Matches 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q06532
Q06532;
Q1-NOV-1996 (TrEMBLrel. 01, Created)
Q1-NOV-1996 (TrEMBLrel. 01, Last sequence update)
Q1-NOV-1996 (TrEMBLrel. 20, Last annotation update)
Enterotoxin type C-7 (SEC740N) (Fragment).
Staphylococcus aureus.
Bacteria; Firmicutes; Bacillus/Clostridium group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro: IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
PROSITE; PS00277; STAPH_STREP_TOXIN_1,
PROSITE; PS00278; STAPH_STREP_TOXIN_2;
NOW MED
                             Enterotoxin; Toxin;
                                                                                                                                                                                                                                                                                                                                                                           STRAIN-740N;
                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Staphylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-94011313; PubMed-8406814;
Marr J.C., Lyon J.D., Roberson J.R., Lupher M., E
"Characterization of novel type C staphylcoccal
biological and evolutionary implications.";
Infect. Immun. 61:4254-4262(1993).
EMBL; L13376; AAA26620.1;
EMBL; L13376; AAA26620.1;
EMBL; L13376; P34071; ISE2.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DKVKTELLNEDLAKKYKDEVVDVYGSNYYVNCYFSSKDNVGKVTGGKTCMYGGITKHEGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDSNTSQIEVYLTTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HFDNGKLQNVLIRVYENKRNTISFEVQTDKKSVTAQELDIKARNFLINKKNLYEFNSSPY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SQPDFTPDELHKASKFTGLMENNKVLYDDRYVSATKVKSVDKFLAHDLIYNISDKKLKNY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ETGYIKFIENNGNTFWYDMAPAPGDKFDQSKYLMYNDNKTVDSKSVKIEVHLTTK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     239 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N.A.
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47.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27618 MW; Al3E7EB25C6989C2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         45;
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Pred. No. 6e-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacillales;
                                                                                                                                                                                                                 S. PYOGENES
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                                                                                                                                                                                                           Query Match
Best Local Sin
Matches 110;
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Best Local S
Matches 111
                                                                                                                                                                                                                                                                                                                                     EMBL; L13378; AAA26622.1; -.
HSSP; P34071; 1STE.
InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
PROSITE; PS00278; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
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Q1-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-94011313; PubMed-8406814; Marr J.C., Lyon J.D., Roberson J.R., Lupher M., E "Characterization of novel type C staphylococcal biological and evolutionary implications."; Infect. Immun. 61:4254-4262(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STAPHYLOCOCCAL FOOD POISONING SYNDROME -!- SIMILARITY: THE DIFFERENT S. AUREUS EN PYROGENIC EXOTOXINS ARE ALL RELATED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. STRAIN-MNCOPELAND;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Firmicutes; Bacillus/Clostridium group; Bacillales; Staphylococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Enterotoxin type C (SE Staphylococcus aureus.
                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                         Enterotoxin; Toxin; Superantigen.
NON_TER 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   206533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Infect. Immun. 61:4254-4262(1993).
-!- DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID-1280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAR-2002
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                                                                                                                                                                                                                             Similarity
                                                                                                                                                   AQQDPDPSQLHRSS-LVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSG---PNY
                                                 Similarity
                 HLEIP--KKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVRKYLTDNKQLYTNGPSKY
                                                                                         DKLKTELKNQEMATLFKDKNVDIYGVEYYHLCYLC--ENAER----SACIYGGVTNHEGN 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HLEIP--KKIVVKVSIDGIQSLSFDIETNKKMYTAQELDYKVRKYLTDNKQLYTNGPSKY
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                                                                                                                             SQPDPTPDELHKSSEFTGTMGNMKYLYDDHYVSATKVKSVDKFLAHDLIYNISDKKLKNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HFDNGNLQNVLVRVYENKRNTISFEVQTDKKSVTAQELDIKARNFLINKKNLYEFNSSPY
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                                                                                                                                                                                                                                                                                   239 AA; 27651 MW;
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                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (TremBLrel. 01, Last sequence update) (TremBLrel. 20, Last annotation update) type C (SECCOPELAND) (Fragment).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
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                                                                                                                                                                                                                             41.5%;
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                                                                                                                                                                                                       Score 549; DB
Pred. No. 8.4e
45; Mismatches
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Pred. No. 7
A21A954386AE8625 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
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7.1e-32;
hes 67;
                                                                                                                                                                                                                             .4e-32;
                                                                                                                                                                                                                                             DB
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                                                                                                                                                                                                                                           Length 239;
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                                                                                                                                                                                                         Indels
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Best Local S
Matches 112
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Pfam; PF01123; Stap_Strp_toxin; 1.

Pfam; PF02876; Stap_Strp_tox_C; 1.

PRINTS; PR00279; BACTRLTOXIN.

PROSITE; PS00277; STAPH_STREP_TOXIN_1;

PROSITE; PS00278; STAPH_STREP_TOXIN_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Edwards V.M., Deringer J.R., Callantine S.D., Deobald C.F., Berger P.H., Kapur V., Stauffacher C.V., Bohach G.A.;
"Characterization of the type C enterotoxin (SEC-canine) prostaphylococcus intermedius pyoderma isolates.";
Submitted (FEB-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; 091536; AABDQ48.1;
EMBL; 091536; AABDQ48.1;
HSSP; P23313; 1JCK.
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Staphylococcus intermedius.
Bacteria; Firmicutes; Bacillus/Clostridium
                                                                                                                                                     Staphylococcus aureus. Bacteria; Firmicutes;
                                                                                                                                                                                                        01-NOV-1996 (TrEMBLrel. 01, Last sequence update) 01-MAR-2002 (TrEMBLrel. 20, Last annotation updat Enterotoxin type C-4 (SEC4446) (Fragment).
                                                                                                                                                                                                                                      Q06531;
01-NOV-1996 (TrEMBLrel.
01-NOV-1996 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                           Q06531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
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STRAIN-95-011195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Staphylococcus
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RX MARY J.C., Lyon J.D., Roberson J.R., Lupher M., Bohach G.A.;
RR MARY J.C., Lyon J.D., Roberson J.R., Lupher M., Bohach G.A.;
RR MCharacterization of novel type C staphylococcal enterotoxins:
RT blological and evolutionary implications.";
RI Infect. Immun. 61:4254-4262(1993)
C. Infect. Immun. 61:4254-4262(1993)
C. INFERSE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION
C. STAPHYLOCOCCAL FOOD POISONING SYNDROME
C. INFERSE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION
C. INFERSE: THE DIFFERENT S. AUREUS ENTEROTOXINS AND S. PYGGENES
C. INFERSE: L13374; AAA36618.1; --
C. EMBL; L13374; SAAB_STEP_COXIN; 1.

DR Pfam; PF02875; Stap_Strp_toxin; 1.

DR Pfam; PF02875; Stap_Strp_toxin; 1.

DR Pfam; PF0277. STABL STEPE TOXIN 1.
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                                   Enterotoxin type C-3 (Staphylococcus aureus.
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PROSITE; PS00278; STAPH_STREP_TOXIN_2;
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MEDLINE=94011313; PubMed=8406814;
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Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STAPHYLOCOCCAL FOOD POISONING SYNDROME.

1- SIMILARITY: THE DIFFERENT S. AUREUS ENTEROTOXINS AND S. PYCGENES PYROGENIC EXOTOXINS ARE ALL RELATED.

EMBL; L13379; AAA26623.1; .

HSSP; P34071; 1SE2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.

MEDLINE-94011313; PubMed-8406814;

Marr J.C., Lyon J.D., Roberson J.R., Lupher M., Bohach G.A.;

"Characterization of novel type C staphylococcal enterotoxins: biological and evolutionary implications.";

Infect. Immun. 61:4254-4262(1993).

-!- DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   006534:
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
Enterotoxin type C (SECOVINE) (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF001123; Stap_Strp_toxin; 1.
Pfam; PF00276; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BAGTELTOXIN
PROSITE; PS00277; STAPH_STREP_TOXIN_1;
PROSITE; PS00278; STAPH_STREP_TOXIN_2;
PROSITE; PS00278; STAPH_STREP_TOXIN_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Firmicutes; Bacillus/Clostridium group; Bacillales; Staphylococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1. PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                              Enterotoxin; Toxin; Superantigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Staphylococcus aureus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q06534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=1280;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109;
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ETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDSNTSQIEVYLTTK 251
|||||||| | :||:|| | | :||||||||||: :|| : :|||:|||||
ETGYIKFIESNGNTFWYDMMPAPGDKFDQSKYLMIYKDNKMYDSKSVKIEVHLTTK 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AQQDPDPSQLHRSS-LVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGP---NY
                                                                                                            SQPDPTPDELHKASKFTGLMENMKVLYDDRYVSATKVKSVDKFLAHDLIYNISDKKLKNY
                                                                                                                                           AQQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSG---PNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HFDNGNLQNVLIRVYENKRNTISFEVQTDKKSVTAQELDIKARNFLINKKNLYEFNSSPY
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                                                                                                                                                                                                                                                                                                                                239 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             239 AA; 27648 MW; CC3CB3B04E4119E0 CRC64;
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                                                                                                                                                                                                                      ; Score 539; DB 2;
; Pred. No. 4.3e-31;
48; Mismatches 63
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Pred. No. 1.9e-31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 239 AA.
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Copyright (c) 1993 - 2003 Compugen Ltd.
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SUMMARIES

	Description	27.	2	740	26	16	16.	3		Sequence 12. Appl	Segmence 10 Appl	Sequence 8, Appli	Sequence 6, Appli	Sequence 10, Appl	Sequence 10, Appl	Sequence 8. Appli	Sequence 14. Appl	Sequence 14. Appl	Sequence 6. Appli	Sequence 12. Appl
		US-10-002-784A-27	US-10-002-784A-25	US-10-002-784A-24	US-10-002-784A-26	US-08-882-431-16	US-10-002-784A-16	US-08-973-391A-13	US-09-870-759-20	US-09-150-947B-12	US-09-870-759-10	US-10-151-336-8	US-10-002-784A-6	US-10-002-784A-10	US-08-882-431-10	US-10-002-784A-8	US-08-882-431-14	US-10-002-784A-14	US-08-882-431-6	US-09-870-759-12
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US-10-002-784A-26 Sequence 24, 136 46.7 220 9 US-10-002-784A-26 Sequence 26, 136 45.4 251 1 US-08-882-431-16 Sequence 16, 136 45.4 251 9 US-10-002-784A-16 Sequence 16, 137 44.9 251 9 US-09-05-784A-16 Sequence 16, 138 43.1 255 9 US-09-973-91A-13 Sequence 13, 256 9 US-09-973-91A-13 Sequence 13, 257 259 1 US-09-150-9478-12 Sequence 13, 258 250 250 250-750-750-750-750-750-750-750-750-750-7	Score Match Length DB ID Description 2500 100.0 468 9 US-10-002-784A-27 Sequence 27, 1324.5 53.0 3248 9 US-10-002-784A-25 Sequence 27, 1324.5 53.0 398 9 US-10-002-784A-24 Sequence 24, 1168 46.7 220 9 US-10-002-784A-24 Sequence 26, 1136 45.4 251 1 US-08-892-431-16 Sequence 26, 1122 44.9 251 9 US-10-002-784A-16 Sequence 16, 1122 44.9 251 9 US-10-002-784A-16 Sequence 16, 1122 44.9 251 9 US-10-02-13, 12, 12, 12, 13 10 US-09-150-94PB-12 Sequence 17, 12, 12, 12, 12, 13 10 US-09-150-94PB-12 Sequence 17, 12, 12, 13, 10 US-09-150-94PB-12 Sequence 17, 12, 12, 12, 12, 13, 13, 13, 13, 13, 13, 13, 13, 13, 13	Score Match Length DB ID Description 2500 100.0 468 9 US-10-002-784A-27 Sequence 27, 1332 53.3 248 9 US-10-002-784A-25 Sequence 27, 1368 46.7 220 9 US-10-002-784A-24 Sequence 24, 1168 46.7 220 9 US-10-002-784A-16 Sequence 26, 1136 45.4 25.1 105-08.882-431-16 Sequence 16, 1132 44.2 25.1 9 US-10-002-784A-16 Sequence 16, 1122 44.2 25.1 9 US-09-784A-16 Sequence 16, 1122 44.3 25.1 9 US-09-150-789-10 Sequence 13, 21.7 239 10 US-09-150-947B-12 Sequence 20, 543 21.7 239 10 US-09-150-947B-12 Sequence 10, 543 21.6 266 9 US-10-151-386-8 Sequence 8 D	Score Match Length DB ID 2500 100.0 468 9 US-10-002-784A-27 1332 53.0 398 9 US-10-002-784A-25 1324.5 53.0 398 9 US-10-002-784A-25 136 46.7 220 9 US-10-002-784A-26 136 45.4 251 1 US-08-882-431-16 136 45.4 251 9 US-10-002-784A-16 137 525 9 US-10-002-784A-16 250 9 US-10-002-784A-16 250 9 US-09-18-13-16 250 9 US-09-18-13-16 250 9 US-09-18-12 250 9 US-09-18-13 250 9 US-09-18-13 250 9 US-09-18-13 250 9 US-09-18-13 250 9 US-09-18-136-8 250 0 US-09-18-136-8 250 0 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1324.5 53.0 348 9 US-10-002-784A-25 1324.5 53.0 398 9 US-10-002-784A-25 136 46.7 220 9 US-10-002-784A-25 136 46.7 220 9 US-10-002-784A-16 136 45.4 251 1 US-08-882-431-16 Sequence 2 138 53.5 250 9 US-10-002-784A-16 Sequence 1 251 2 239 1 US-08-973-391A-13 Sequence 2 543 21.7 266 9 US-09-870-759-20 Sequence 1 Sequence 2 543 21.6 266 9 US-09-870-759-10 Sequence 1 Sequence 2 543 21.2 269 9 US-10-111-336-8 Sequence 1 Sequence 1 Sequence 1 Sequence 2 Sequence 2 Sequence 1 Sequence 1 Sequence 1 Sequence 2 Sequence 3 Sequence 1 Sequence 1 Sequence 1 Sequence 2 Sequence 3 Sequence 1 Sequence 2 Sequence 2 Sequence 3 Sequence 3 Sequence 3 Sequence 3 Sequence 4 Sequence 1 Sequence 2 Sequence 3 Sequence 3 Sequence 4 Sequence 1 Sequence 1	Score Match Length DB ID Score Match Length DB ID 2500 100.0 468 9 US-10-002-784A-25 1324.5 53.0 348 9 US-10-002-784A-25 1324.5 53.0 38 9 US-10-002-784A-25 1368 46.7 220 9 US-10-002-784A-25 1368 45.4 251 1 US-08-882-431-16 Sequence 2 136 45.4 251 9 US-10-002-784A-16 137.5 250 9 US-10-002-784A-16 Sequence 2 138.5 37.5 250 9 US-09-870-759-20 Sequence 2 251 8 US-09-870-759-10 Sequence 2 251 21.7 269 9 US-09-870-759-10 Sequence 2 252 21.3 266 9 US-10-002-784A-16 Sequence 2 253 21.3 266 9 US-10-002-784A-10 Sequence 2 252 21.0 239 1 US-09-870-759-10 Sequence 2 252 21.0 239 1 US-09-873-11-10 Sequence 2 265 1 US-09-882-431-10 Sequence 2 266 1 US-09-882-431-14 Sequence 3 20.9 266 9 US-10-002-784A-8 Sequence 2 266 1 US-09-882-431-14 Sequence 1 US-08-882-431-14 Sequence 1 US-08-882-431-14	Score Match Length DB ID Score Match Length DB ID 2500 100. 468 9 US-10-002-784A-27 1324.5 53.0 398 9 US-10-002-784A-25 1324.5 53.0 398 9 US-10-002-784A-25 1324.5 53.0 9 US-10-002-784A-26 1324.5 53.0 9 US-10-002-784A-26 1324.5 53.0 9 US-10-002-784A-26 1324.5 53.0 9 US-10-002-784A-16 1324.5 53.0 9 US-10-002-784A-16 1324.5 53.0 10 US-09-130-131 1324.5 53.0 9 US-10-131 1324.5 53.0 9 US-10-002-784A-10 1324.5 53.0 9 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œ	US-IU-UUZ-/84A-39	08-09-8/0-/59-14	0S-09-900-166-6	US-09-870-759-8	US-10-002-784A-4	US-09-900-766-4	US-10-283-838-7	US-10-002-784A-2	08-09-900-166-7	US-10-283-838-8	US-08-882-431-2	US-08-882-431-4	US-09-900-166-5	US-09-900-166-3	US-00-300-166-1	US-09-870-759-16	US-09-900-166-2	US-10-002-784A-37	US-10-002-784A-38	US-10-002-784A-36	US-10-002-784A-35	US-10-002-784A-33	US-09-402-100-4	US-10-099-285-80	US-09-765-272-222
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20.3		2.11	11.3	10.5	10.3	10.3	10.3	10.3	10.3	10.3	10.2	10.1	6.6	9.6	9.7	9.6	9.0	7.5	7.5	7.4	6.2	5.0	4.9	4.9	4.8
506.5	0.760	6.067	281.5	263.5	257.5	257.5	257.5	257.5	256.5	256.5	256	252	248.5	244.5	241.5	241	225.5	188	188	184	156	124.5	123	121.5	121
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ALIGNMENTS

	0;	09	120	180	240
RESULT 1 US-10-002-784A-27 Sequence 27, Application US/10002784A Publication No. US20030036644A1 GENERAL INFORMATION: (S)	Ouery Match 100.0%; Score 2500; DB 9; Length 468; Best Local Similarity 100.0%; Pred. No. 1.2e-185; Matches 468; Conservative 0; Mismatches 0; Indels 0; Gaps	QY 1 MQQDPDPSQLHRSSLVKNLQNIYFLVEGDPVTHENVKSVDQLRSHDLIYNVSGPNYDKLK 6	OY 61 TELKNOEMATLEKDKNIDIYGVEYYHLCYLCENAERSACIGGYTNREGNHLEIPKKIVYK 1:	QY 121 VSIDGIQSLSFDIETNKRWTAQELDYKVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKE 1:	OY 181 SFWEDFFPEPEFTQSKYLMIYKDNEŤLDSKTQIEVYLTTKQPVVKSLLDSKGIHYNQGNP 2.
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TITLE OF INVENTION: Bacterial Superantigen Vaccines FILE REFERENCE: 003/233/SAP CURRENT APPLICATION NUMBER: US/10/002,784A CURRENT FILING DATE: 2001-11-26 PRIOR PELICHG DATE: 97-06-25; 98-09-01 NUMBER OF SEQ ID NOS: 40 SEQ ID NOS: 40 SEQ ID NO 24 LENGTH: 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Ulrich, Robert G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
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                                                                                        NHPKNLFAAISTRQYNWNNILPTYSGRESNVQKMAISELMADVGISVDMDYGPSSGSAGS
                                                                                                        SRVQRALKENFGYNQSVHQINRSDFSQDWEAQIDKELSQNQPVYYQGGKVGGHAFVIDGA
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                                                                                                                                                                                                                                            DGRNFYHVNWGWGGVSDGFFRLDALNPSALGTGGGGGGFNGYQSAVVG 468
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 248;
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TITLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
CURRENT APPLICATION NUMBER: US/10/002,784A
CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882.431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
SOFTWARE APPLE Macintosh Microsoft Word 6.0
SEQ ID NO 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         53.3%; Score 1332; DB 9;
100.0%; Pred. No. 1.5e-95;
tive 0; Mismatches 0;
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                                                                                                                                                                                                                                                                                                                                        Sequence 25, Application US/10002784A Publication No. US20030036644Al GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 100.C
Matches 248; Conservative
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US-10-002-784A-24
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US-10-002-784A-25
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APPLICANT: Ulrich, Robert G.

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; OTHER INFORMATION: mutant streptococcal pyrogenic exotoxin B prosegement US-10-002-784A-24
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                                                                                                                                                                                                                                  95 ERSACI-GGVTNREGNHLEIPKKIVVKVSIDGIQSLSFDIETNK-KMVTAQELDYKVRKY
                                                                                                                                                                                                                                                                                                                                                                                                                                          213 IEVYLTT---KQPVVKSLLDSKGIHYNQGNPYNLLTPVIEKVKPGEQSFVGQHAATGCVA
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                                                                                                                                                                                                                                                                                                                                         153 LIDNKQLYINGPSKYETGYIKFIPKNKESFWFDFFPEPEFTQSKYLMIYKDNETLDSNTQ
                                                                                                                                                                                                                                                                              47 QKSAAIKAGARSAEDIKLD---KVNLGGELSGSNMYGYNISTGGFVIVSGDKRSPEILGY
                                                                                                                                                                               39;
                                                                                                                         Ouery Match 53.0%; Score 1324.5; DB 9; Length 398; Best Local Similarity 71.7%; Pred. No. 1.1e-94; Matches 273; Conservative 20; Mismatches 49; Indels 39;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: Bacterial Superantigen Vaccines FILE REFERENCE: 003/233/SAP
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CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/682,431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: A-L- SOFTWARE: A-L- Macintosh Microsoft Word 6.0 SEQ ID NO 26 LENGTH: 220
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ORGANISM: Artificial sequence
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ORGANISM: Artificial sequence
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US-10-002-784A-16
Sequence 16, Application US/10002784A
Publication No. US20030036644A1
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Schlievert, Patrick M.
APPLICANT: Rogiani, Manuela
APPLICANT: Stocht, Jennifer
APPLICANT: Stocht, Jennifer
TITLE OF INVENTION: MUTANTS OF STREPTOCOCCAL TO)
FILE REFERENCE: 600.311USWO
CURRENT APPLICATION NUMBER: US/08/973,391A
CURRENT FILING DATE: 1998-03-12
PRIOR APPLICATION NUMBER: PCTUS96/10252
PRIOR FILING DATE: 1996-06-07
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SEQ ID NO 16
LENGTH: 251
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TITLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
CURRENT APPLICATION NUMBER: US/10/002,784A
CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
NUMBER OF SEQ ID NOS: 40
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                                                                                                                                                                                   Sequence 13, Application US/08973391A Patent No. US20020054887A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Artificial sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  211 SEWEDFFPEPEFTQSKYLMIYKDNETLDSNTSQIEVYLTTK 251
                                                                                                                                                                                                                                                                                                                   181 SFWFDFFPEPEFTQSKYLMIYKDNETLDSNT-QIEVYLTTK 220
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 QQDPDPSQLHRSSLVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGPNYDKLKT 61
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Similarity 98.2%;
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Pred. No. 2.4e-80
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                                                                                             TOXIN A AND METHODS OF USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 251;
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; TYPE: PRT
; ORGANISM: Streptococcus pyogenes
US-09-870-759-20
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                                                              Marches
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                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: US 60/208,128 PRIOR FILING DATE: 2000-05-30 NUMBER OF SEQ ID NOS: 166
                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/09/870,759
CURRENT FILING DATE: 2002-01-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: COMPOSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: US 08/480,261
PRIOR FILING DATE: 1995-06-07
NUMBER OF SEQ ID NOS: 13
SOFTWARE: Patentin version 3.1
SEQ ID NO 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILE REFERENCE: 870759
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                                                                                                             65 NOEMATLEKDKNIDIYGVEYYHLCYLCENAERSACI-GGVTNREGNHLEIPKKIVVKVSI 123
                                                                                                                                                                                                                                       185;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181 SFWFDFFFEFEFTQSKYLMIYKDNETLDSNT-QIEVYLTTK 220
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                                                                                                                                                                                                                                                                                                                                        250
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                                              rwrs
                                                                                                                                                                                                                                                   Similarity
                                                                       יאים OSLSFDIETNKKMYTAQELDYKYRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFW 183
                                                                                                                                                                                  |PDPSQLHRSSLVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGPNYDKLKTELK 64
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EPEFTQSKYLMIYKDNETLDSNTSQIEVYLTTK 250
                      FPEFTQSKYLMIYKDNETLDSNT-QIEVYLTTK 220
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                                                        #FDIEQIKN-GNCSRISYTYRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFW
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84.9%;
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97.38;
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Pred. No. 4.7e-65;
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Pred. No. 2.9e-79;
1; Mismatches 3;
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                                                                                                                                                                                 ; LENGTH: 266
; TYPE: PRT
; ORCANISM: Staphylococcus aureus
US-09-870-759-10
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; LENCTH: 239
; TYPE: PRT
; ORGANISM: Staphylococcus aureus
US-09-150-947B-12
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SEQ ID NO 10
LENGTH: 266
                                                                                                                         Matches
                                                                                                                                        Query Match
Best Local (
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APPLICANT: TERMAN, David S
TITLE OF INVENTION: COMPOSI
FILE REFERENCE: 870759
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Patent No. US20020177551A1
                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: US 60/208,128
PRIOR FILING DATE: 2000-05-30
NUMBER OF SEQ ID NOS: 166
SOFTWARE: Datanta
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CURRENT FILING DATE: 2002-01-14
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: BROAD SPECTRUM PYROGENIC EXOTOXINS TITLE OF INVENTION: ANTAGONISTS AND VACCINES FILE REFERENCE: A31967-PCT-USA-A CURRENT APPLICATION NUMBER: US/09/150,947B CURRENT FILING DATE: 1998-09-10 PRIOR APPLICATION NUMBER: PCT/IL97/00438 PRIOR FILING DATE: 1997-12-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No. US20020028211A1
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58 KLKTELKNOEMATLFKDKNIDIYGVEYYHLCYLCENA------ERSACI-GGVTNRE 107
                                   30 QPDPKPDELHKSSKFTGLMENMKYLYDDNHVSAINVKSIDQFLYFDLIYSIKDTKLGNYD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123 GNOLDKYRSITYRYFEDGKNLLSEDVOTNKKKYTAGELDYLTRHYLVKNKKLYEFNNSPY 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108 GNHLEIPKKIVVKVSIDGIOSLSFDIETNKKMVTAQELDYKVRKYLTDNKOLYTNGPSKY 167
                                                                2 QQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGP---NYD 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63 NVRVEFKNKDLADKYKDKYVDVFGANYYYQCYFSKKTNDINSHETDKRKTCMYGGVTEHN 122
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                                                                                                                                    Similarity
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                                                                                                                  Conservative
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                                                                                                                           21.6%; Score 541; DB 9; 47.7%; Pred. No. 3.2e-34;
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                                                                                                              Mismatches
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                                                                                                                                              Length 266;
                                                                                                          Indels 18;
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SOFTWARE: /
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SEQ ID NO 8
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Publication No. US20030079248A1
                          APPLICANT: Ulrich, Robert G.
TITLE OF INVENTION: Bacterial Superantigen Vaccin
FILE REFERENCE: 003/233/SAP
CURRENT APPLICATION NUMBER: US/10/002,784A
CURRENT FILING DATE: 2001-11-26
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR APPLICATION NUMBER: 08/882,431; 09/144,776
PRIOR FILING DATE: 97-06-25; 98-09-01
NUMBER OF SEQ ID NOS: 40
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CURRENT FILING DATE: 2002-05-20
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TITLE OF INVENTION: Gemini Virus Vectors for Gene
FILE REFERENCE: 4868/84453
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APPLICANT: Palmer, Ker
APPLICANT: Hefferon, I
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ORGANISM: bean
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
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             Apple Macintosh
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KLKTELKNQEMATLFKDKNIDIYGVEYYHLCYLCENA------ERSACI-GGVTNRE 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGP---NYD
                                                                                                                                                                                                                                                                                                                ETGYIKFI-ENENSFWYDMMPAPGDKFDQSKYLMMYNDNKMVDSKDVKIEVYLTTKK 265
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Mor, Tsafrir
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47.7%;
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              Microsoft Word 6.0
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Pred. No. 4.6e-34;
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US-10-002-784A-6
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SOFTWARE: Apple Macintos!
SEQ ID NO 10.
LENGTH: 239
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Best Local :
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Publication No.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Ulrich, Robert G.
TITLE OF INVENTION: Bacterial Superantigen Vaccines
FILE REFERENCE: 003/233/SAP
                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
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ETGYIKFI-ENENSFWYDMMPAPGDKFDQSKYLMMYNDNKMVDSKDVKIEVYLTTKK 238
                               ETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDS-NTQIEVYLITKQ 221
                                                                    GNQLDKYRSITVRVFEDGKNLLSFDVQTNKKKVTAQELDYLTRHYLVKNKKLYEFNNSPY 182
                                                                                                                                                                 KLKTELKNQEMATLFKDKNIDIYGVEYYHLCYLCENA-----ERSACI-GGVTNRE 107
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No. US20030036644A1
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46.8%;
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Pred. No. 1
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L.6e-33;
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Sequence 10, Application US/08882431 Publication No. US20030009015A1 GENERAL INFORMATION:

APPLICANT: APPLICANT:

Robert G. Ulrich, Mark A. Olson Sina Bavari

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RESULT 15
US-10-002-784A-8
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                                  GENERAL INFORMATION:
                                                  Sequence 8, Application US/10002784A Publication No. US20030036644A1
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Best Local
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APPLICANT: Ulrich,
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NFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Macintosh
SOFTWARE: Microsoft Word 6.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
LENGTH: 239
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: Amino Acid
STRANDEDNESS: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Moran, John REGISTRATION NUMBER: 26,313
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: USA
ZIP: 21702-5012
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FORT DETRICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
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                                                                                                                                                                                                                                                                                               NVRVEFKNKDLADKYKDKYVDVFGANAYYQCAFSKKINDINSHQTDKRKTCMYGGVTEHN 122
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                                                                                                                                                       ETGYIKFI-ENENSFWYDMMPAPGDKFDQSKYLMMYNDNKMVDSKDVKIEVYLTTKK 238
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[PE: Peptide
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Robert G
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Pred. No. 4.8e-33;
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Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
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                       ETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDS-NTQIEVYLTTKQ 221
                                                                                GNQLDKYRSITVRVFEDGKNLLSFDVQYNKKKVTAQELDYLTRHYLVKNKKLYEFNNSPY 209
                                                                                                                       GNHLEIPKKIVVKVSIDGIOSLSFDIETNKKMVTAQELDYKVRKYLTDNKQLYTNGPSKY 167
                                                                                                                                                                                           KLKTELKNOEMATLFKDKNIDIYGVEYYHLCYLCENA····-ERSACI-GGVTNRE 107
                                                                                                                                                                                                                                               QPDPKPDELHKSSKFTGLMENMKVLYDDNHVSAINVKSIDQFRYFDLIYSIKDTKLGNYD 89
                                                                                                                                                                                                                                                                                         QQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGP---NYD
ETGYIKFI-ENENSFWYDMMPAPGDKFDQSKYLMMYNDNKMVDSKDVKIEVYLTTKK 265
                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                  20.9%; Score 523; Di
46.8%; Pred. No. 8e-:
tive 39; Mismatches
                                                                                                                                                                                                                                                                                                                                                    8e-33;
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                                                                                                                                                                                                                                                                                                                                  Gaps
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7;

Search completed: June 23, 2003, 16:16:39 Job time: 25.0835 secs

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Title:
Perfect score:
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Maximum DB seq length: 200000000
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Maximum Match 100%
Listing first 45 summaries
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                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                             Score
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Gapop 10.0 , Gapext 0.5
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2500
1 MQQDPDPSQLHRSSLVKNLQ.....ALGTGGGAGGENGYQSAVVG 468
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Match Length DB
  SPTREMBL_21:*
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Q936P4
Q536P4
Q536P4
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214	218	218	•	231.5	236.5	237.5	257.5	260.5	262.5	263	272.5	279.5		281.5		291.5	303.5	422	431	434	444	444	482	487.5	487.5	492.5	504	505
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242	242	218	242	256	239	239	260	268	258	240	108	260	241	217	261	260	136	886	258	258	258	233	259	260	260	260	234	239
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054476 staphylococ	O85383 staphyLococ	S.	6			7		to	4		w	w	S			C)		Q53481 porphyromon			O85382 staphylococ	' co	Q936g4 staphylococ				-	

ALIGNMENTS

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QY 249 EKYKPGEDOSFYGGHAATGCVATATAQIMKYHNYPNKILKADYTYLSSNNPYFNHPKNLFA 308 174 EKYKPGEOSFYGGHAATGCVATATAQIMKYHNYPNKILKDYTYTLSSNNPYFNHPKNLFA 308 174 EKYKPGEOSFYGGHAATGCVATATAQIMKYHNYPNKILDYTYTLSSNNPYFNHPKNLFA 233 QY 309 AISTROYNWNNILPTYSGRESNVQKMAISELMADVGISVDMDYGPSSGSAGSSRVQRALK 368	Duery Match S3.0%; Score 1324. Best Local Similarity 91.1%; Pred. No. 2 Matches 257; Conservative 6; Mismatch 192 FTQSKYLMIYKDNETLDSNTQIEVYLTT : : : : : : : : : : : : :	RC STRAIN-NZIAL; RA Watanabe Y., Ohkuni H.; RA Watanabe Y., Ohkuni H.; RT "Cloning and expression analysis of Streptpcoccal pyrogenic exotoxin B RT (SPE-B)/Streptpcoccal cysteine protease (SCP)."; RI Submitted (NOV-2000) to the EMBL/GenBank/DDBJ databases. DR EMBL; AB051298; BAB40954.1; - DR InterPro; IPR000200; Peptidase_C10. DR Pfan; PF01640; Peptidase_C10; 1. DR PRINTS; PR00797; STREETPOPAIN. SQ SEQUENCE 398 AA; 43218 MW; 07D1F534E7887CDD CRC64;	Pyrogenic exotoxin B. SPE B. Streptococcus pyogenes. Bacteria; Firmicutes; Bacill Streptococcacae; Streptococ NCBI_TaxID=1314; [1]	AJD
KGLKDYTYTLSSNNPYFNHFKNLFA 308	5; DB 2; Length 398; .7e-76; es 8; Indels 11; Gaps 5; es 8; Indels 11; Gaps 5; exppvvkstlDskGiHYNOGNPYNLLTPVI 248 [ccal pyrogenic exotoxin B)."; databases.	coup; Lactobacillales;	adate)

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Best Local S
Matches 251
    Q54779 PRELIMINARY; PRT; 236 AA. Q54779; Q54613; Q54736; Q54740; Q54741; Q1-NOV-1996 (TrEMBLrel. 01, Created) Q1-NOV-1996 (TrEMBLrel. 01, Last sequence update) Q1-MAR-2002 (TrEMBLrel. 20, Last annotation update) Type A exotoxin precursor (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q93LQ2 PRELIMINARY; PKI; JTT.... (993LQ2); (TrEMBLrel. 19, Created) (1-DEC-2001 (TrEMBLrel. 19, Last sequence up 01-JUN-2002 (TrEMBLrel. 21, Last annotation Cysteine protease SpeB (Fragment).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Jadoun J., Eyal O., Sela S.;

*Role of CsrR, hasA, and speB genes in the internalization Streptococcus pyogenes by epithelial cells.*;

Submitted (MAY-2001) to the EMBL/GenBank/DDBJ databases.

EMBL; AY035886; AAK71464.1;

MEROPS; C10,001; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptococcus pyogenes.
Bacteria; Firmicutes; Bacillus/Clostridium group; Lactobacillales;
Streptococcaceae; Streptococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPRO00200; Peptidase_C10. Pfam; PF01640; Peptidase_C10; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID-1314;
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                                                                                                                                                                                                                                     HVNWGWGGVSDGFFRLDALNPSALGTGGGAGGFNG
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91.3%;
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Pred. No. 2.1e
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J. Exp. Med. 174:1271-1274(1991).
EMBL; X61569; CAA43767.1; -.
EMBL; X61572; CAA43770.1; -.
EMBL; X61578; CAA43766.1; -.
EMBL; X61570; CAA43768.1; -.
EMBL; X61571; CAA43769.1; -.
HSSP, P08095; 1BLE.
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01-MAY-2000
01-MAY-2000
01-MAR-2002
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Bacteria; Firmicutes; Bacteria; Firmicutes; Bacteria; Streptococcaceae; Strept.
NCBI_TaxID=1314;
  MEDLINE-99137798; PubMed-9952369; Bessen D.E., Izzo M.W., Fiorentin Hollingshead S.K., Beall B.;
                                                                                                                   Bacteria; Firmicutes;
Streptococcaceae; Stre
NCBI_TaxID=1314;
                                                             SEQUENCE FROM N.A.
STRAIN-D709;
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SIGNAL
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Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
PROSITE: PS00277; STAPH_STREP_TOXIN_1;
PROSITE: PS00278; STAPH_STREP_TOXIN_2;
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MEDLINE-92044323; PubMed-1940804;
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98.68;
                                                                                                                                                           Bacillus/Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P.M., Selander R.K., Musser clonal distribution of four
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacillus/Clostridium group; Lactobacillales;
  Fiorentino
1 B.;
                                                                                                                                                                                                                                           13,
20,
                                                                                                                                                                                                                                         Created)
Last sequence us
Last annotation
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TYPE A EXC
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Pred. No. 3.9
                                                                                                                                                                                                                                                                                                                         PRT;
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                  T.R.,
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                  Caringal R.M.,
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fever toxin) in
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Indels Length

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Gaps

180

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Lactobacillales;

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Best Local Similarity
Matches 207; Conserv
                 gene encoding pyrogenic exotoxin A (scar Streptococcus pyogenes.";
J. Exp. Med. 174:1271-1274(1991).

EMBL; X61556; CAA43754.1;
EMBL; X61557; CAA43755.1;
EMBL; X61557; CAA43753.1;
EMBL; X61555; CAA43753.1;
EMBL; X61558; CAA43753.1;
EMBL; X61558; CAA43756.1;
EMBL; X61559; CAA43757.1;
EMBL; X61559; CAA43752.1;
EMBL; X61559; CAA43752.1;
EMBL; X61559; CAA43752.1;
EMBL; X61559; CAA43752.1;
EMBL; X61564; CAA437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-MGAS155, AND MGAS500;
STRAIN-M92044323; PubMed-1940804;
Nelson K., Schlievert P.M., Selander R.K., Musser J.M.;
"Characterization and clonal distribution of four alleles of "Characterization and clonal distribution of in in the second of the secon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
NON_TER
SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01123; Stap_Strp_toxin; 1.

Pfam; PF02876; Stap_Strp_tox_C; 1.

PRINTS; PR00279; BACTRLTOXIN.

PROSITE; PS00277; STAPH_STREP_TOXIN_1;

PROSITE; PS00278; STAPH_STREP_TOXIN_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Genetic linkage of exotoxin alleles and tropism in group A streptococci.";
J. Infect. Dis. 179:627-636(1999).
EMBL; AF055698; AAD11624.1;
HSSP; P08095; 1B1Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Type A exotoxin precursor (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptococcaceae; Streptococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptococcus pyogenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=1314;
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ilarity 98.1%;
Conservative
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                       STAPH_STREP_TOXIN_1; 1.
STAPH_STREP_TOXIN_2; 1.
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Pred. No. 4.1e-62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                48BB7ADDCD91FBA3 CRC64;
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 Query Match
Best Local Similarity
Matches 206; Conserv
                                                                                                                                                                          "Characterization and clonal distribution of four gene encoding pyrogenic exotoxin A (scarlet fewer streptococcus pyogenes.";

J. Exp. Med. 174:1271-1274(1991).

EMBL; X61563; CAA43760.1;

EMBL; X61561; CAA43765.1;

EMBL; X61561; CAA43765.1;

EMBL; X61564; CAA43765.1;

EMBL; X61565; CAA43763.1;

EMBL; X61566; CAA43763.1;

EMBL; X61566; CAA43764.1;

EMBL; X61566; CAA4376
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Best Local
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Q57453;
Q1-NOV-1996
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01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. STRAIN-MGAS496;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptococcaceae; NCBI_TaxID=1314;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptococcus pyogenes.
Bacteria; Firmicutes; Bacillus/Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Type A exotoxin precursor (Fragment).
                                                                                                                               SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-92044323; PubMed-1940804;
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98.1%;
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TYPE A EXC
Score 1089.5; DB
Pred. No. 1.1e-61
L; Mismatches
                                                                                                            POTENTIAL.
TYPE A EXOTOXIN.
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                                    DB 2;
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                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 186; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nelson K., Schllevert P.M., Selander R.K., Musser J.M.
"Characterization and clonal distribution of four all
gene encoding pyrogenic exotoxin A (scarlet fever tox
Streptococcus pyogenes.";
J. Exp. Med. 174:1271-1274(1991).
EMBL; X61573; CAA43771.1; -.
EMBL; X61573; CAA43771.1; -.
HSSP; P08095; 181Z.
InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF01123; Stap_Strp_tox.C; 1.
PFAMS; PR00179; BACTRETOXIN.
PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
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CHAIN
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SEQUENCE
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Bacteria; Firmicutes; Bacillus/Clostridium
Streptococcaseae; Streptococcus.
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SPEA.
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01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1996 (TrEMBLrel. 01,
01-MAR-2002 (TrEMBLrel. 20,
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    SEWEDFFPEPEFTQSKYLMIYKDNETLDSNT
                                                                                      VSIDGIQSLSFDIETNKKMYTAQELDYKVRKYLIDNKQLYTNGPSKYETGYIKFIPKNKE
                                                                                                                                                                          ELKNQEMATLFKDKNIDIYGVEYYHLCYLCENAERSACI-GGVTNREGNHLEIPKKIVVK 120
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Last sequence update)
Last annotation update)
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Pred. No. 3.7
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AC 098524
AC 09960
AC 09
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Best Local S
Matches 185
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Q9S5Z4;
01-MAY-2000
                                                                                                                                               01-DEC-2001 (TrEMBLrel. 19, Creat
01-DEC-2001 (TrEMBLrel. 19, Last
01-DEC-2002 (TrEMBLrel. 20, Last
01-MAR-2002 (TrEMBLrel. 20, Last
Pyrogenic exotoxin A (Fragment).
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Q938P4;
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InterPro; IPR001961; Stap_Strp_toxin; 1.
Pfam; PF01123; Stap_Strp_tox.C; 1.
Pfam; PF0286; Stap_Strp_tox.C; 1.
PRINTS; PR00279; PACTRITOXIM.
PROSITE; PS00277; STAPH_STREP_TOXIN_1;
PROSITE; PS00278; STAPH_STREP_TOXIN_2;
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                                                                               Streptococcus equisimilis.
Bacteria; Firmicutes; Bacillus/Clostridium
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Bacteria; Firmicutes; Bacillus/Clostridium
                                         NCBI_TaxID-119602,
                                                             Streptococcaceae;
SEQUENCE
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01-MAR-2002
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185; Conserv
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222 AA;
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Last annotation updat
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Last annotation updat
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                                                                                                                                                                      annotation update)
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                                                                                                                                                   Query Match
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Best Local Similarity
Matches 185; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q53678 PRELIMINARY;
Q53678;
O1-NOV-1996 (TrEMBLrel. O
01-NOV-1996 (TrEMBLrel. O
01-MAR-2002 (TrEMBLrel. 2
Enterotoxin (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.

MEDLINE-9401313; PubMed-8406814;

MEDLINE-94011313; PubMed-8406814;

MART J.C., Lyon J.D., Roberson J.R., Lupher M., E

"Characterization of novel type C staphylococcal

"Characterization of novel type C staphylococcal

blological and evolutionary implications.";

Infect. Immun. 61:4254-4262(1993).

EMBL; L13376; AAA2620.1; -...

HSSP: P34071; 1SE2.
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SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001961; Stap/Strep_toxin pfam; pF01123; Stap_Strp_toxin; 1. pfam; pF02876; Stap_Strp_tox_C; 1. pfam; pF02876; Stap_Strp_tox_C; 1. pRINTS; PR00279; BACTRLTOXIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF01123; Stap_Strp_toxin; 1.

Pfam; PF02876; Stap_Strp_tox_C; 1.

PROSITE; PS00277; STAPH_STREP_TOXIN_1; UNKNOWN_1.

PROSITE; PS00278; STAPH_STREP_TOXIN_2; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Presence of streptococcal pyrogenic exotoxin A and C genes isolates of group G Streptococci.";
Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AY049745; AAL06068.1;
InterPro; IPR001961; Stap/Strep_toxin.
                                                                                                                                                                                                                                                                                                                                                   PROSITE; PS00277; STAPH_STREP_TOXIN_1;
PROSITE; PS00278; STAPH_STREP_TOXIN_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=1280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Staphylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                            SEQUENCE
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                  w
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                                                                                                                                                Similarity 45.1
)6; Conservative
                                       QQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSG----PNYD
       QPDPTPDELHKASKFTGLMENMKVLYDDRYVSATKVKSVDKFLAHDLIYNISDKKLKNYD
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222 AA;
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llarity 87.7%;
Conservative 13
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; 25884 MW;
                                                                                                                                                                                                                                                                                     27618 MW; A13E7EB25C6989C2 CRC64;
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                                                                                                                                     Score 516; DB 2; Pred. No. 2.7e-25; Martches 69;
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Last sequence update)
Last annotation update)
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                                                                                                                                                                                                                 Length 239;
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   RESULT 12
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AC Q0653
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DT 01-NC
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QPFOLO
ID OPFOL
AC OPFOL
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Q06532;
Q06532;
Q1-NOV-1996
Q1-NOV-1996
Q1-MAR-2002
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Query Match
Best Local
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Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
PROSITE; PS00278; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
SEQUENCE 271 AA; 31267 MW; 3493F6228B0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Characterization of a putative pathogenicity island Staphylococcus aureus encoding multiple superantigens J. Bacteriol. 183:63-70(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
MEDLINE=20566668; PubMed=11114901;
Fitzgerald J.R., Monday S.R., Fost
Meaney W.J., Smyth C.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Staphylococcal enterotoxin SEC-BOV.
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HSSP; P34071; 1SE2.
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                                                                                                                         169
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                                                                                                                                                                                                                               QPDPTPDELHKASKFTGLMENMKVLYDDRYVSATKVKSVDKFLAHDLIYNISDKKLKNYD
                                                                                                                                                                                                                                                       KLKTELKNQEMATLFKDKNIDIYGVEYYHLCYLCE-----NAERSACIGGVTNREGNH 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LEIPK--KIVVKVSIDGIQSLSFDIETNKKMYTAQELDYKVRKYLTDNKQLYTNGPSKYE
                                                                                                        TGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDS-NTQIEVYLTTK
                                                                                                                                                                                                                                                                                                                                        QQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSG----PNYD 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGYIKFIPKNKESEWFDFFPEP--EFTQSKYLMIYKDNETLDS-NTQIEVYLTTK 220
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                                                                                      TGYIKFIENNGNTFWYDMMPAPGDKFDQSKYLMMYNDNKTVDSKSVKIEVHLTTK 269
                                                                                                                                                             FUNGKLONVLIRVYENKRNTISFEVOTDKKSVTAQELDIKARNFLINKKNLYEFNSSPYE
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                                                                                                                                                                                                                                                                                                                                                                               Conservative
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 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                           20.6%; Score 516; DB 2;
45.1%; Pred. No. 3.2e-25;
Live 44; Mismatches 69
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Last annotation updat
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                                                                                                                                                                                                                                                                                                                                                                                                             Length 271;
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Best Local S
Matches 106
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Wart J.C., Lyon J.D., Roberson J.R., Eupher M., Bohach G.A.;
"Characterization of novel type C staphylococcal enterotoxins:
"Infect Immun. 61:4254-4262(1993).
"C -1- SIZE STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION
"C STAPHYLOCOCCAL FOOD POISONING SYNDROME.
"C STAPHYLOCOCCAL FOOD POISONING SYNDROME.
"C -1- SIXLIARITY: THE DIFFERENT S. AUREUS ENTEROTOXINS AND S. PYOGENES
"C PYROGENIC EXOTOXINS ARE ALL RELATED.
"PROGENIC EXOTOXINS ARE ALL RELATED.
"R EMBL; L13375; AAA26619:1; -
"DR PROGENIC EXOTOXINS ARE ALL RELATED.
"R PEAM; P911123; Stap_Strp_toxin.
"InterPro; IPR001961; Stap/Strep_toxin.
"PEAM; PF01123; Stap_Strp_toxin."
"PEAM; PF01123; Stap_Strp_toxin."
"PROSITE; PS00276; STAPH_STREP_TOXIN_1; 1.
"PROSITE; PS00276; STAPH_STREP_TOXIN_2; 1.
"PROSITE; PS00276; STAPH_STREP_TOXIN_2; 1.
                                            SEQUENCE FROM N.A.

STRAIN-MNCOPELAND;

MEDLINE-94011313; PubMed-8406814;

MET J.C., Lyon J.D., Roberson J.R., Lupher M., Bohach G.A.;

"Characterization of novel type C staphylococcal enterotoxins: biological and evolutionary implications.";

Infect Immun. 61:4254-4262(1993).

INFECT. IMMUN. 61:4254-4262(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q06533;
                                                                                                                                                                                                                                                                                                                                                              01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NAR-2002 (TrEMBLrel. 20, Last annotation update)
Enterotoxin type C (SECCOPELAND) (Fragment).
Staphylococcus aureus.
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                                                                                                                                                                                                                                                                                                 Staphylococcus.
NCBI_TaxID=1280;
                                                                                                                                                                                                                                                                                                                                                Bacteria; Firmicutes; Bacillus/Clostridium group; Bacillales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacteria; Firmicutes; Staphylococcus.
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  STAPHYLOCOCCAL SIMILARITY: THE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        239 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
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  FOOD POISONING E DIFFERENT S. A
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 515; DB 2; I Pred. No. 3.1e-25; 3; Mismatches 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
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     AUREUS EN
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     ENTEROTOXINS
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  PYOGENES
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C STRAIN=95-011195;
C STRAIN=95-011195;
A Edwards V.M., Deringer J.R., Callantine S.D., Deobald C.F.,
A Edwards V.M., Deringer J.R., Callantine S.D., Deobald C.F.,
T Characterization of the type C enterotoxin (SEC-canine) pro
Staphylococcus intermedius pyoderma isolates.";
Staphylococcus intermedius pyoderma isolates.";
L Submitted (FEB-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; U91526; AAB50248.1;
InterPro: IPR001961; Stap/Strep_toxin.
Pfam; PF03313; 1JCK.
InterPro: IPR001961; Stap/Strep_toxin; 1.
PFANTS; PF01123; Stap_Strp_toxin; 1.
PFANTS; PF02870; Stap_Strp_tox.C; 1.
PFNNTS; PF0279; BACTRLTOXIN.
DR PROSITE; PS00279; STAPH_STREP_TOXIN_1; 1.
DR PROSITE; PS00279; STAPH_STREP_TOXIN_2; 1.
                                                      Query Match
Best Local S
Matches 107
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Best Local S
Matches 105
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HSSP; p34071; ISTE.
InterPro; IPR001961; Stap/Strep_toxin.
Pfam; pF01123; Stap_Strp_toxin; 1.
Pfam; pF02876; Stap_Strp_tox C; 1.
PRINTS; PR00279; BACTRLTOXIN.
PROSITE; PS00279; STAPH_STREP_TOXIN_1; 1
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                     O05157 PRELIMINARY; PR
O05157; O1-JUL-1997 (TrEMBLrel. 04, Crea
O1-JUL-1997 (TrEMBLrel. 04, Last
O1-MAR-2002 (TrEMBLrel. 20, Last
Type C enterotoxin (Fragment).
                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                            Staphylococcus intermedius.
Bacteria; Firmicutes; Bacillus/Clostridium group; Bacillales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
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107; Conser
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KLKTELKNQEMATLFKDKNIDIYGVEYYHLCYLCE-----NAERSACIGGVTNREGNH 110
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QPDPMPDDLHKSSEFTGTMGNMKCLYDDYYVSATKVKSVDKFLAHDLIYNISDKKLKNYD
                        QQDPDPSQLHRSS-LVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSG---PNYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KVKTELLNEDLAKKYKDEVVDVYGSNYYVNCYFSSKDNVGKVTGGKTCMYGGITKHEGNH
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                                                                                                                239 AA;
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Last sequence update)
                                                      Score 513; DB 2;
Pred. No. 4.1e-25;
1; Mismatches 71;
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Pred. No. 3
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Matches 106
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PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
Enterotoxin; Toxin; Superantigen.
NON_TER 1 1
SEQUENCE 239 AA; 27612 MW; BB7BD62047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Marr J.C., Lyon J.D., Roberson J.R., Lupher M., Bohach G.A.;
"Characterization of novel type C staphylococcal enterotoxins:
biological and evolutionary implications.";
Infect. Immun. 61:4254-4262(1993).
-1- DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION
STAPHYLOCOCCAL FOOD POISONING SYNDROME.
-1- SIMILARITY: THE DIFFERENT S. AUREDIS ENTEROTOXINS AND S. PYOGENES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1996 (TREMBLrel. 01, Created)
01-NOV-1996 (TREMBLrel. 01, Last sequence update)
01-NAR-2002 (TREMBLrel. 20, Last annotation update)
Enterotoxin type C-4 (SEC4446) (Fragment).
Staphylococcus aureus.
                                                                                                                                                                                                                                                                                                                                                                                                     InterPro: IPR001961; Stap/Strep_toxin.
pfam; PF01123; Stap_Strp_toxin; 1.
pfam; PF02876; Stap_Strp_tox.C; 1.
pRINTS; PR00279; BACTRLTOXIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PYROGENIC EXOTOXINS ARE ALL RELATED.
EMBL; L13374; AAA26618.1; -
HSSP; P34071; 1SE2.
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                                                                                                                       111 LEIP--KKIVVKVSIDGIQSLSPDIETNKKMVTAQELDYKVRKYLTDNKQLYTNGPSKYE 168
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106; Conserv
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                                                                 TGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDS-NTQIEVYLTTK 220
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OM protein - protein search, using sw model
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ETC4_STAAU
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ETXA_STAAU
ETXA_STAAU
SPEH_STRPY
SPEC_STRPY
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SPEC_STRPY
CGA1_HELPY
CGA2_HELPY
CGA2_HELPY
DSC1_HUMAN
DPO1_BORBU
        RRPL_RDVA
YE70_METJA
S230_PLAF0
S230_PLAF0
DPOL_CBEPV
V143_RVAC
RF3_SACBA
M478_RICPR
MUS2_HELPJ
RPOD_MARPO
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P01552 staphylococ
P23313 staphylococ
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P80200
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borrelia bu
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buchnera ap
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45	44	43	42	41	40	39	38	37	36	3 <u>5</u>	34
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ALIGNMENTS

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"Complete genome sequence of an M1 strain of Streptococcus	Y Cliffon C W DOO D A Motinghlin D .	edux C., sezate S., suvorov A.N., senton S., Lai n.S.,	., McShan W.M., Ajdic D.J., Savic D.J., Savic G., Lyc	21192684; PubMed=11296296;	a	UENCE FROM		d (JUL-1999) to the EMBL/GenBank/DDBJ databas	ovel cloning method used arbitrarily prime			FROM N.A.		Submitted (NOV-1998) to the EMBL/GenBank/DDBJ databases.			UENCE FROM		Microb Pathog 15:327-346(1993).	"" a transporting and department of the stransporting of the period of the server of t	nill R.J., Patti J.M., Musser J.M.;	Kapur V., Topouzis S., Majesky M.W., Li L.L., Hamrick M.R.,		STRAIN-Various MGAS strains;	SEQUENCE FROM N.A., AND CHARACTERIZATION	EBOW N 3	J. Bacteriol. 172:4536-4542(1990).			the streptococcal pyrogenic exotoxin	ievert P.M.;	MEDLINE=90330563; PubMed=2198264;	STRAIN-86-858, and NY-5;	SEQUENCE FROM N.A., AND SEQUENCE OF 28-32 AND 146-162.		NCHI THAYIDHI314. 186103:	Extractionocomes; Lactobattitates; Streptococcateae;	Streptococus pyogenes (serotype MIA).		1.1		(Streptococcus peptidase A) (SPP) (Exotoxin	precursor (EC 3.4.22.10) (Strepts	(Rel. 22,	(Rel. 01, Crea	; ;	67; Q54968; Q57024; Q57082; Q57202; Q57211; Q57	Q54961; Q54962; Q	SPEB STRPY STANDARD; PRT; 398 AA.	B STRPY

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MEDILINE-99386317; pubMed-10456871;

TBa1 P-J., L1n Y.-S., Kuo C.-F., Le1 H.-Y., Wu J.-J.;

TBa1 P-J., L1n Y.-S., Kuo C.-F., Le1 H.-Y., Wu J.-J.;

TGroup A Streptococcus induces apoptosis in human epithelial cells.*;

Infect. Immun. 67:4334-4339(1999).

-1- FUNCTION: IMPORTANT STREPTOCOCCAL VIRULENCE FACTOR WHICH CLEAVES HUMAN FIBRONECTIN AND DEGRADES VITRONECTIN. ALSO CLEAVES HUMAN IL1B PRECURSOR TO FORM BIOLOGICALLY ACTIVE IL1B. CAN INDUCE APOPTOSIS IN HUMAN MONOCYTES AND EPITHELIAL CELLS IN VITRO, AND REDUCES PHAGOCYTIC ACTIVITY IN MONOCYTIC CELLS. THUS, MAY PUAY A ROLE IN BACTERIAL COLONIZATION, INVASION, AND INHIBITION OF WOUND URBALTING
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STRAIN-WZ131 / Serotype M49,T14;

STRAIN-WZ131 / Serotype M49,T14;

MEDLINE-99081733; PubMed-9864206;

KHO C.-F., Wu J.-J., Tsai P.-J.,
                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
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MEDLINE-76190087; PubMed-1270417;

Tai J.Y., Kortt A.A., Liu T.-Y., Elliott S.D.;

"Primary structure of streptococcal proteinase. III. Is cyanogen bromide peptides: complete covalent structure polypeptide chain.";

J., Biol. Chem. 251:1955-1959(1976).
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"Genome sequence and comparative microarray analysis of ser group A Streptococcus strains associated with acute rheumat
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STRAIN-MGAS8232 / Serotype M18;
MEDLINE-21927593; PubMed-11917108;
Smoot J.C., Barbian K.D., Van Gompel J
Sylva G.L., Sturdevant D.E., Ricklefs
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YONAHA K., Elllott S.D., Liu T.-Y.;
"Primary structure of zymogen of streptococcal
J. Protein Chem. 1:317-334(1982).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FUNCTION
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Proc. Natl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATALYTIC ACTIVITY: Preferential cleavage with hydroph residues at P2, P1 and P1', SUBCELLULAR LOCATION: Secreted.
DISEASE: THE STREPTOCOCCAL PYROGENIC TOXINS A, B, AND THE CAUSATIVE AGENTS OF THE SYNETOMS ASSOCIATED WITH S PEVER, HAVE BEEN ASSOCIATED WITH STREPTOCOCCAL TOXIC S DISEASE AND MAY PLAY A ROLE IN THE EARLY EVENTS OF RHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY:
           M86905;
L26125;
L26126;
L26127;
L26127;
L26128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEVER
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G -> S (IN STRAIN MGAS 1896).

V -> I (IN STRAIN MGAS 168).

A -> V (IN STRAIN MGAS 165, 168, 4: 659, 660, 796, 800, 1719, 1838, 188; 2017 AND 2018).

T -> I (IN STRAIN MGAS 650).

D -> N (IN STRAIN MGAS 664).

V -> L (IN STRAIN MGAS 366, 427, 79; 1294, 1911, 1914A AND 1991).

K -> V (IN STRAIN MGAS 587).

I -> V (IN STRAIN MGAS 587).

S -> G (IN STRAIN MGAS 597).

I -> V (IN STRAIN MGAS 1901 AND SV).

S -> G (IN STRAIN MGAS 1901 AND SV).

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S -> G (IN STRAIN MGAS 1871).

V -> I (IN STRAIN MGAS 366 AND 1294).

ST -> AS (IN STRAIN MGAS 366 AND 1294).
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01-AUG-1988 (Rel. 08, Created)
01-AUG-1989 (Rel. 13, Last sequence update)
01-JAN-1990 (Rel. 13, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Exotoxin type A precursor (Scarlet fever toxin) (Erythrogenic toxin)
                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN-MGAS8232 / Serotype M18;
STRAIN-MGAS8232 / Serotype M18;
STRAIN-MGAS8232 / Serotype M18;
SMEDLINE-21927593; PubMed-11917108;
SMEDLINE-21927593; PubMed-11917593;
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SMEDLINE-21927593; PubM
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   x̄-RAY CRYSTALLOGRAPHY (2.57 ANGSTROMS).
MEDLTNB=99094887; PubMed=9878045;
Papageorgtou A.C., Colling C.M., Gutman
O'Brien S.M., Tranter H.S., Acharya K.R
                                                                                                                                                                                                group A Streptococcus outbreaks.";
                                                                                                                                                                                                                              Parkins L.D., Beres S.B., Campbell D.S., Smith T.M., Kapur V., Daly J.A., Veasy L.G., Musser J.M.; Kapur v., Daly J.A., Veasy L.G., Musser J.M.; "Genome sequence and comparative microarray analysis group A Streptococcus strains associated with acute r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Johnson L.P., L'Italien J.J., Schlievert P.M.; "Streptococcal pyrogenic exotoxin type A (scarlet related to Staphylococcus aureus enterotoxin B."; Mol. Gen. Genet. 203:354-356(1986).
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"Nucleotide sequence
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MEDLINE-86166804; PubMed+3514452;
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                                 .M., Gutman D.
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PIR; A26152; A26152.
PIR; S29659; S29659.
PDB; 1B1Z; 24-NOV-99.
InterPro; IPR001961; Stap/Strep_toxin, 1.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF0279; BACTRITOXIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- DISEASE: THE STREPTOCOCCAL PYROGENIC TOXINS A, B, AND C ARE THE CAUSATIVE AGENTS OF THE SYMPTOMS ASSOCIATED WITH SCARLET FEVER, HAVE BEEN ASSOCIATED WITH STREPTOCOCCAL TOXIC SHOCK-LIKE DISEASE AND MAY PLAY A ROLE IN THE EARLY EVENTS OF RHEUMATIC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        send an email to license@isb-sib.ch).
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SFWFDFFPEPEFTQSKYLMIYKDNETLDSNT-QIEVYLTTK
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H -> Q (IN REF. 2).
S -> N (IN REF. 2).
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                                                                                                                                   MEDLINE-98181012; PubMed-9514739;
Papageorgiou A.C., Tranter H.S., Acharya K.R.;
"Crystal structure of microbial superantigen stap enterotoxin B at 1.5-A resolution: implications i recognition by MHC class II molecules and T-cell J. Mol. Biol. 277:61-79(1998).
                                                                                                                                                                                                                                                                                                                                                       Jardetzky T.S., Brown J.H., Gorga J.C., Chi Y.I., Stauffacher C., Strominger J.I. "Three-dimensional structure of a human molecule complexed with superantigen.", Nature 368:711-718(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=93063291; PubMed=1436058; Swaminathan S., Furey W.F. Jr., Pletcher J., Sax "Crystal structure of staphylococcal enterotoxin"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P01552;
21-JUL-1986
13-AUG-1987
                                                                                                                                                                                                                                            Karjalainen K., Mariuzza R.A.; "Three-dimensional structure of the complex between a T cell beta chain and the superantigen staphylococcal enterotoxin B. Immunity 9:807-816(1998).
                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY (1.5 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                   MEDLINE-99096298;
                                                                                                                                                                                                                                                                                                                                                                                                                       X-RAY CRYSTALLOGRAPHY (2.7 ANGSTROMS)
MEDLINE-94203282; PubMed-8152483;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "The primary structure of staphylococcal cyanogen bromide peptides of reduced and B, and the complete anino acid sequence."
J. Biol. Chem. 245:3518-3525(1970).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-71007902; PubMed-54 Huang I.-Y., Bergdoll M.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ranelli D.M., Jones C.L., Johns M.B., Mussey G.J., "Molecular cioning of staphylococcal enterotoxin B Escherichia coli and Staphylococcus aureus."; Proc. Natl. Acad. Sci. U.S.A. 82:5850-5854(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 40-91 FROM MEDLINE-85298255; Pubme
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MEDLINE-86168029; PubMed-3957869;
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 European
by non-
                                                                  SUBCELLULAR LOCATION: Secreted.
DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE
STAPHYLOCOCCAL FOOD POISONING SYNDROME.
SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/S
FAMILY.
                                                                                                                                                                                                                                                                                                                             CRYSTALLOGRAPHY (2.4 ANGSTROMS)
                                                                                                                                                                                                                                                                                                   Llera A., Tsuchiya D., Leder L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  359:801-806(1992).
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Staphylococcus

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Staphylococcus aureus (strain Mu50 / Staphylococcus aureus (strain N315),

(SEC3).

update)

STRAIN-Mu50 /

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700699,

and N315;

EQUENCE FROM

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P23313;
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2SEB; 28-JAN-98.
3SEB; 27-MAY-98.
1SE3; 16-JUN-97.
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A01815; E
S27360; S
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PS00278;
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                                                                                                                                                                                      ETGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDS-NTQIEVYLTTKQ
                                                                                                                                                                                                               GNQLDKYRSITYRVFEDGKNILSFDVQTNKKKVTAQELDYLTRHYLVKNKKLYEFNNSPY
                                                                                                                                                                                                                              GNHLEIPKKIVVKVSIDGIQSLSFDIETNKKMVTAQELDYKVRKYLTDNKQLYTNGPSKY 167
                                                                                                                                                                                                                                                  QQDPDPSQLHRSSLVKNL-QNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSGP---NYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and this statement is not removed requires a license agreement (See an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                    KLKTELKNOEMATLFKDKNIDIYGVEYYHLCYLCENA-----ERSACI-GGVTNRE 107
                                                                                                                                                                                                                                                                                       QPDPKPDELHKSSKFTGLMENMKVLYDDNHVSAINVKSIDQFLYFDLIYSIKDTKLGNYD
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STAPH_STREP_TOXIN_2; 1.
n; Signal; Superantigen;
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47.7%; Pr
tive 39;
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DOFLYFDLI -> NEFFDLIYL (
MISSING (IN REF. 3).

DIN -> NID (IN REF. 3).

QTD -> ENT (IN REF. 3).

NG -> GN (IN REF. 3).

Y -> YY (IN REF. 3).

QE -> EQ (IN REF. 3).

D -> N (IN REF. 3).

OE -> EQ (IN REF. 3).
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Pred. No. 9
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                                                                                                                                                                                                                                                                               Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRITOXIN.
PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
Enterotoxin; Toxin; Signal; Superantigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
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1. SUBCELLULAR LOCATION: Secreted.

1. DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION STAPHYLOCOCCAL FOOD POISONING SYNDROME.

1. SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL TOXIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Nucleotide sequence of the staphylococcal enterotoxin sequence comparison of all three type C staphylococcal enterotoxins.";
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Schlievert P.M., Karjalainen K., Mariuzza R.A.;
"Crystal structure of a T-cell receptor beta-ch
                                                                                                                                                                                                                             DISULFID
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-90220508;
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                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR001961; Stap/Strep_toxin.
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                                                                                                                                                                                                                                                                                                                                                                                                  ; AP003364; BAB58171.1; -.; AP003135; BAB43097.1; -.; X51661; CAA35972.1; -. S11885; S11885.
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106; Conser
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                                                                                                              QQDPDPSQLHRSS-LVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSG---PNYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3S-PROT entry is copyright. It is produced through the Swiss Institute of Bioinformatics and the En
KVKTELLNEDLAKKYKDEVVDVYGSNYYVNCYFSSKDNVGKVTGGKTCMYGGITKHEGNH
                                                                 KLKTELKNQEMATLFKDKNIDIYGVEYYHLCYLCE-----NAERSACIGGVTNREGNH
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Hackett S.P., Bohach G.A.;
                                                                                                                                                        Conservative
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137
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Pred. No.
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OS STAADAY
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P34071;
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PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
Enterotoxin; Toxin; Signal; Superantigen;
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PROSITE; PS00277; STAPH_STREP_TO
                                                                                                                                                                                                                                                                         PIR; A60114; A60114.
PDB; 1STE; 23-DEC-96.
PDB; 1SE2; 08-MAR-96.
InterPro; IPR001961; Stap/Strep_toxin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dissimilarity.";
J. Mol. Biol. 269:270-280(1997).
-!- COFACTOR:.Binds 1 zinc ion p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-96022987; PubMed-7552730; Swaminathan S., Furey W.F. Jr., F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Crystal structure of the superantigen enterotoxin C2 Staphylococcus aureus reveals a zinc-binding site."; Structure 3:769-779(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  enterotoxins C1 and C2.";
Infect. Immun. 57:2249-2252(1989)
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15-JUN-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.,
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TO THE STAPHYLOCOCCCAL/STREPTOCOCCAL TOXIN
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                                                                                    ENTEROTOXIN TYPE C-2
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Best Local Sim:
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15-JUN-2002
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SEQUENCE
    PROSITE;
                                                                                                                                         use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                               EMBL; X05815; CAA29260.1; -. PIR; A01816; ENSAC1. PIR; S06356; S06356. HSSP; P34071; 1SE2.
                                                                                                                                                                                                                                                                                                                                                        Bohach G.A., Schilevert P.M.;
"Nucleotide sequence of the staphylococcal enterotoxin C1 gene relatedness to other pyrogenic toxins.";
mol. Gen. Genet. 209:15-20(1987).
[2]
SEQUENCE OF 28-266.
MEDLINE-83213327; PubMed-6189824;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ETC1_ST
P01553;
                           InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
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                                                                                                                                                                                                                                                                                                                     J. Biol.
                                                                                                                                                                                                                                                                                                                                              Schmidt J.J., Spero
                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-88038352; Bohach C .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Staphylococcus aureus Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENTC1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Enterotoxin
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                                                                             HSSP; P34071;
                                                                                                                                                                                                                                                           e complete amino acid sequence of staphylococcal enteroto:
Biol. Chem. 258:6300-6306(1983).

SUBCELLULAR LOCATION: Secreted.
DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICAT
STAPHYLOCOCCAL FOOD POISONING SYNDROME.
SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL
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PS00278;
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266 AA;
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type C-1 F
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STAPH_STREP_TOXIN_1;
STAPH_STREP_TOXIN_2;
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Matches 105
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SIGNAL
CHAIN
DISULFID 1
CONFLICT 1
SEQUENCE 26
                                                                                                                Lancet 357:1225-1240(2001).

-I- SUBCELLULAR LOCATION: Secreted.
-I- DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICATION
STAPHYLOCOCCAL FOOD POISONING SYNDROME.
-I- SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL TOXIN
                                                                                                                                                                                                                                                      Kuroda M., Ohta T., Uchiyama I., Baba T., Yuzawa H., Kobayashi Cui L., Oguchi A., Aoki K.-I., Nagai Y., Lian J.-Q., Ito T., Kanamori M., Matsumaru H., Maruyama A., Muzakami H., Hosoyama A Mizutani-Ui Y., Takahashi N.K., Sawano T., Inoue R.-I., Kaito C Sekimizu K., Hirakawa H., Kuhara S., Goto S., Yabuzaki J., Kanehisa M., Yamashita A., Oshima K., Furuya K., Yoshino C., Sh. Hattori M., Ogasawara N., Hayashi H., Hiramatsu K.; "Whole genome sequencing of meticillin-resistant Staphylococcus aureus.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                StaphyLococcus aureus.
StaphyLococcus aureus.
Bacteria; Firmicutes; Bacillales;
Bacteria; Firmicutes; 158879, 1280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-JUN-2002 (Rel. 41, Last sequence
15-JUN-2002 (Rel. 41, Last annotatic
Enterotoxin type 6 precursor (SEG).
ENTG OR SEG OR SAV1824 OR SA1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN-Mu50 / ATCC 700699, and N31
MEDLINE-21311952; PubMed-11418146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              types G and I from Infect. Immun. 66:3
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                                                                                                                                                                                                                                                 aureus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM
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"Identification and characterization of staphylococcal enterotoxin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              from Staphylococcus aureus."; 66:3337-3348(1998).
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Pred. No. 1
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                                                        REVISIONS, SEQUENCE FROM N.A.

STRAIN-ATCC 53977;

MEDLINE-95105001, PubMed-7806362;

Madden T.E., Clark V.L., Kuramitsu H.K.;

"Revised sequence of the Porphyromonas gingivalis prtT c:
protease/hemagglutinin gene: homology with streptococcal
exotoxin B/streptococcal proteinase.";

Infect. Immun. 63:238-247(1995).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. STRAIN-ATCC 53977;
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01-NOV-1995 (Rel. 32, Last sequence update)
01-NOV-1995 (Rel. 32, Last annotation update
Thiol protease/hemaggiutinin prtT precursor
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PROSITE; PS00277; STAPH_STREP_TOXIN_1;
PROSITE; PS00278; STAPH_STREP_TOXIN_2;
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or send an email to license@isb-sib.ch).
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Pred. No. 2.1e-22;
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SEQUENCE FROM N.A., AND X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS).
STRAIN-ATCC 23235;
MEDLINE-97157473; PubMed-9003758;
                                                                                                                                                                                                                                                                                                                                                            01-FEB-1991
01-FEB-1991
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                                                                                                                               Bayles K.W., Iandolo J.J.; "Genetic and molecular analyses of the
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InterPro; IPR001230;
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CAUTION: IT IS UNCERTAIN WHETHER MET-1 OR MET-17 IS THE INITIATOR.
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01-JAN-1990 (Rel. 13
15-JUN-2002 (Rel. 41
Enterotoxin type.A F
ENTA OR MW1889.
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EMBO J. 15:6832-6840(1996).
-!- SUBUNIT: HOMODIMER; ZINC-DEPE
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P13163;
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PROSITE; PS00277; STAPH_STREP_TOXIN_1;
PROSITE; PS00278; STAPH_STREP_TOXIN_2;
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Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
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                           Staphylococcus aureus (strain MW2),
Staphylococcus aureus.
Bactteria: Firmicutes; Bacillales; Si
NCBI_TaxID-196620, 1280;
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SUBCELLULAR LOCATION: Secreted.
DISEASE: STAPHYLOCOCCAL ENDEROTOXINS CAUSE THE INTOXICATION
STAPHYLOCOCCAL FOOD POISONING SYNDROME.
SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL TOXIN
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Baba T., Takeuchi F., Kuroda M., Yuz
Nagai Y., Iwama N., Asano K., Naimi
Yamamoto K., Hiramatsu K.;
"Genome and virulence determinants c
acquired MRSA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-87222293; pubMed-3584106;
Huang I.-Y., Hughes J.L., Bergdoll M.S., Schantz
"Complete amino acid sequence of staphylococcal
J. Biol. Chem. 262:7006-7013(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Betley M.J., Mekalanos J.J.;
"Nucleotide sequence of the type A staphylococcal enterotoxin gene.";
J. Bacteriol. 170:34-41(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-MWZ;
MEDLINE-22040717; PubMed-12044378;
MEDLINE-22040717; PubMed-12044378;
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STRAIN-MW2;
                                                                                                                                                                                                                                                                                             Schad E.M., Papageorgiou A.C., Svensson L.A., Acharya K.R.
"A structural and functional comparison of staphylococcal
enterotoxins A and C2 reveals remarkable similarity and
dissimilarity.";
J. Mol. Biol. 269:270-280(1997).
-I- CORACTOR: Binds I zinc ion per subunit. The zinc ion i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS).

MEDLLINE-95354648; PUBMed-7628431;

MEDLLINE-95354648; PUBMed-7628431;

Schad E.M., Zaitseva I., Zaitsev V.N., Dohlsten

Schal E.M., Jaitseva I., Svensson L.A.;
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                                                                                                                                                                               for the toxin interaction with MHC class II.

-!- SUBGULT: MONOMER.
-!- SUBCELLULAR LOCATION: Secreted.
-!- DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE INTOXICAT
STAPHYLOCOCCAL FOOD POISONING SYNDROME.
-!- MISCELLANEOUS: THIS TOXIN SEEMS TO BE CODED BY A BACTERI
-!- SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCCOCCAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    zn2+ at 2.7-A resolution. Implication
complex class II binding.";
J. Biol. Chem. 271:32212-32216(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sundstroem M., Hallen Abrahmsen L.;
                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                              COMPARISON OF STRUCTURE OF SEA AND SEC2
MEDLINE-97334373; PubMed-9191070:
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MEDLINE=97113025; PubMed-8943278;
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"Residues defining V beta specificity
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                                                                                                                                                                   FAMILY.
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72293; PubMed=3584106;
Rergdol
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Kuroda H., Cui L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Schantz
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COCCAL TOXIN
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AP004828;

BAB95754.1;

PDB; 1ESF; 11-JUL-96. PDB; 1SEA; 15-OCT-95. PDB; 1SXT; 19-NOV-97.

EMBL; PIR; / PIR; /

M18970;

AAA26681.1;

; A28664; A28664 ; A29566; A29566; ; 1ESF; 11-JUL-96

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Best Local S
Matches 70
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Pfam; PF01123; Stap_Strp_tox_C; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
Enterotoxin; Toxin; Signal; Superantigen; Metal-binding; Zinc;
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01-JAN-1990
15-JUN-2002
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SEQUENCE
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                     enterotoxins.*;
Nat. Struct. Biol. 2:680-686(1995).
-!- COFACTOR: Binds 1 zinc ion per
                                                                                                                                                                    "Cloning and nucleotide sequence of enterotoxin gene.";
J. Bacteriol. 170:2954-2960(1988).
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                                                                     MEDLINE-96022987; PubMed-7552730;
Swaminathan S., Furey W.F. Jr., Pletcher
Residues defining V beta specificity in
                                                                                                                                                                                                                             Couch J.L., Soltis M.T.,
                                                                                                                                                                                                                                             MEDLINE-88257005; PubMed-3384800;
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                                                                                                                                                                                                                                                                                                                                              Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                            Staphylococcus aureus
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                   COFACTOR: Binds 1 zinc
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hes 94;
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Best Local :
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Q9X5C8;
16-OCT-2001 (Rel. 40, Creat
16-OCT-2001 (Rel. 40, Last
15-JUN-2002 (Rel. 41, Last
Exotoxin type H precursor (
speh or SPY1008.
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PIR; A28179; A28179.
PDB; 15EE; 15-OCT-95.
InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
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Bacteria; Firmicutes; )
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                         MEDLINE-99093428; PubMed-9874566; Proft T., Moffatt S.L., Berkahn C.J., "Identification and characterization"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
Streptococcus pyogenes. *;
                                                                                                STRAIN-M
                                                                                                                       SEQUENCE FROM N.A
                                                                                                                                                                     Streptococcus.
NCBI_TaxID=1314;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIGNAL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STAPHYLOCOCCAL FOOD POISONING SYNDROME. SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL TOXIN
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DISEASE: STAPHYLOCOCCAL ENTEROTOXINS CAUSE THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FAMILY.
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211
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257 AA;
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Last annotation updat
rsor (SPE H).
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                                                                                                                                                                                                                       Lactobacillales;
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ZINC (BY SIMILARITY).
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Superantigen;
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                                                  Fraser J.D.;
                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                       Streptococcaceae;
                           novel superantigens
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es 85;
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Matches 67
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16-OCT-2001 (Rel. 40, Last
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Exotoxin type C precursor (
SPEC OR SPY0711.
                                                                                                                                 SPEC_STRPY
P13380;
               SPEC OR SPY0711.
Streptococcus pyogenes
Bacteria; Firmicutes; I
Streptococcus.
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Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PR0SITE: PS00277; STAPH_STREP_TOXIN_1;
PROSITE: PS00278; STAPH_STREP_TOXIN_2;
TOX10; Signal; Complete proteome.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM
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MEDLINE-21192684; PubMed-11296296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N
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DISEASE: Mitogenic for human peripheral blood lymphocytes.
SIMILARITY: BELONGS TO THE STAPHYLOCOCCAL/STREPTOCOCCAL TOXIN
                                                                                                                                                                                                                         210
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                                                                                                                                                                                                                      DF - - NSMLKIYSNNERIDS - TOFHY
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Last
                           Lactobacillales; Streptococcaceae;
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                                                                     t sequence update)
t annotation updat
(SPE C).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 203.5;
Pred. No. 1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EXOTOXIN TYPE H. 16352923907AD40D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL.
                                                                                                                                               PRT;
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Query Match

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CONFLICT
SEQUENCE
                                                            PROSITE; PS00277; STAPH_STREP_TOXIN_1; 1.
PROSITE; PS00278; STAPH_STREP_TOXIN_2; 1.
Toxin; Signal; 3D-structure; Complete proteome.
                                                                                                              PIR; A30509; A30509.

PDB; IAN8; 29-APR-98.
InterPro; IPR001961; Stap/Strep_toxin.

Pfam; PF01123; Stap_Strp_toxin; 1.

Pfam; PF02876; Stap_Strp_tox_C; 1.

PRINTS; PR00279; BACTRLTOXIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Roussel A., Anderson B.F., Baker H.M., Fraser J.D., Baker E.N., "Crystal structure of the streptococcal superantigen SPE-C: dimerization and zinc binding suggest a novel mode of interactivith MHC class II molecules.";
Nat. Struct. Biol. 4:635-643(1997).
                                                                                                                                                                                                                EMBL; M35514; AAA27017.1; ALT_SEQ.
EMBL; M97156; AAB59091.1; -
EMBL; M97157; AAB59092.1; -
EMBL; AE006523; AAK33664.1; -
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MEDLINE-21192684; PubMed-11996296;

Ferretti J.J., McShan W.M., Ajdic D.J., Savic (
Primeaux C., Sezate S., Suvorov A.N., Kenton S., Lai H.S.,

Primeaux C., Sezate S., Suvorov A.N., Kenton S., Lai H.S.,

Primeaux C., Sid H.G., Najar F.Z., Ren Q., Zhu H., Song L., Wh.

Yuan X., Clifton S.W., Roe B.A., McLaughlin R.;

"Complete genome sequence of an M1 strain of Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-92363541; PubMed-1500157;
Kapur V., Nelson K., Schlievert P.M., Selander R.K.,
"Molecular population genetic evidence of horizontal
alleles of the pyrogenic exotoxin C gene (speC) among
clones of Streptococcus pyogenes.";
infect. Immun. 60:3513-3517(1992).
                                                  SIGNAL
                                                                                                                                                                                                                                                                                                                                  the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for con
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Goshorn S.C., Schlievert P.M.;
"Nucleotide sequence of streptococcal
Infect. Immun. 56:2518-2520(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         [1]
SEQUENCE FROM N.A., AND SEQUENCE OF STRAIN-T18P / MGAS 1585;
MEDLINE-88314303; PubMed-3045005;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-97397352;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 X-RAY CRYSTALLOGRAPHY (2.4 ANGSTROMS)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Proc. Natl. Acad. Sci. U.S.A. 98:4658-4663(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REVISIONS TO 21-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISEASE: THE STREPTOCOCCAL PYROGENIC TOXINS A, B, AND C ARE THE CAUSATIVE AGENTS OF THE SYMPTOMS ASSOCIATED WITH STREPTOCOCCAL TOXIC SHOCK-LIKE DISEASE AND MAY PLAY A ROLE IN THE EARLY EVENTS OF RHEUMATIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                 MISCELLANEOUS: THIS
SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEVER
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235
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EMBL; AE006489; AAK33303.1; -.
HSSP; P13380; IAN8.
InterPro; IPR001961; Stap/Strep_toxin.
Pfam; PF01123; Stap_Strp_toxin; 1.
Pfam; PF02876; Stap_Strp_tox_C; 1.
PRINTS; PR00279; BACTRLTOXIN.
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16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation updat
Exotoxin type G precursor (SPE G).
SPEG OR SPY0212.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-99093428; PubMed-9874566;
Proft T., Moffatt S.L., Berkahn C.J.,
"Identification and characterization
                                                                                                                                                                                                                                                                                                                                 between
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sen the Swiss Institute of Bioinformatics and the EW
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                                                                                                                                                                                                        non-profit institutions as long and this statement is not removed. requires a license agreement (See lan email to license@isb-sib.ch).
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189:89-102(1999).
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      This SWISS-PROT entry is copyright. It is produced through a collar between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in
                                                                      Herrmann V., Herrmann J., Kist M.;
Submitted (APR-1993) to the SWISS-PROT
-!- FUNCTION: MAY BE MECESGARY FOR THE
OR FUNCTION OF THE CYTOTOXIN.
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01-OCT-1996 (Rel. 34, Last sequence update)
15-UN-2002 (Rel. 41, Last annotation update)
Cytotoxicity associated immunodominant antigen
                                                                                                                                                            Censini S., Lange C., Xiang Z., Crabtree J., Ghiara | Borodovsky M., Rappuoli R., Covacci A.; "cayla pathogenicity island of Helicobacter pylori, specific and disease-associated virulence factors."; "proc. Natl. Acad. Sci. U.S.A. 93:14648-14653(1996).
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STRAIN-CCUG 17874 / NCTC 11638;
MEDLINE-97121442; PubMed-896210
                                                                                                                                                                                                                                                                                                                                              Covacci A., Censini S., Bugnoli M.,
Macchia G., Massone A., Papini E.,
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MEDLINE=93296225; PubMed=8516329;
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STRAIN-CCUG 17874 /
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443 DALN--PSALGTGGGAGGF 459
                                                      874 AKLGNFNNNNNGLKNEPIYAKVNKKKAGQAASLEEPIYAQVAKKVN------AKI 923
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                                                                                                                                                            SKEQLAQQAQKNESLNARKKSEIYQSVKNGVNGTLVGNGLSQAEATTLSKNFSDIKKELN
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Search completed: June 23, 2003, 16:13:02 Job time: 20.2253 secs

Copyright GenCore version 5.1.6 (c) 1993 - 2003 Compus Compugen Ltd.

OM protein protein search, using sw model

June 23, 2003, 16:10:06 ; Search time 34.4979 Seconds (without alignments) 1304.163 Million cell updates/sec

Run

Title: .
Perfect score: US-10-002-784A-27

MQQDPDPSQLHRSSLVKNLQ.....ALGTGGGAGGFNGYQSAVVG

Scoring table: BLOSUM62 Gapop 10.0 ,

Gapext 0.5

283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Maximum seq length: 0 length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

pir1:*
pir2:*
pir3:*
pir4:*

Database

PIR_73:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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ALIGNMENTS

streptococcal pyrogenic exotoxin type B precursor - Streptococcus pyogenes C;Species: Streptococcus pyogenes C;Decies: Streptococcus pyogenes C;Date: 31-May-1991 #sequence_revision 31-May-1991 #text_change 22-Jun-1999 C;Accession: A37768

R; Hauser, A.R.; Schlievert, P.M.

J. Bacteriol. 172, 4536-4542, 1990
A.Title: Nucleotide sequence of the streptococcal pyrogenic exotoxin type B gene and A.Reference number: A37768; MUID:90330563; PMID:2198264
A; Accession: A37768
A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-398 <HAU>
A; Cross-references: GB:M86905; GB:M35110; NID:g153818; PIDN:AAA26978.1; PID:g153819
C; Keywords: exotoxin

Query Match Matches Local 258; Similarity Conservative 53.1%; 91.5%; Score 1327.5; DB 2; Pred. No. 1.4e-79; 5; Mismatches 8; Length 398;

Indels

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밁 QΥ 120 FMES-YVEQIKENKKLDT-----TYAGTAEIKQPVVKSLLDSKGIHYNQGNPYNLLTPVI 192 FTQSKYLMIYKDNETLDSNTQIEVYLTT---KQPVVKSLLDSKGIHYNQGNPYNLLTPVI 173

밁 δÃ 174 249 EKVKPGEQSFVGQHAATGCVATATAQIMKYHNYPNKGLKDYTYTLSSNNPYFNHPKNLFA **EKVKPGEQSFVGQHAATGCVATATAQIMKYHNYPNKGLKDYTYTLSSNNPYFNHPKNLFA** 308 233

몽 δÃ 234 AISTROYNWNNILPTYSGRESNVOKMAISELMADVGISVDMDYGPSSGSAGSSRVORALK 309 AISTROYNWNNILPTYSGRESNVQKMAISELMADVGISVDMDYGPSSGSAGSSRVQRALK 293 368

οĄ 369 ENFGYNQSVHQINRSDFS-QDWEAQIDKELSQNQPVYYQG-GKVGGHAFVIDGADGRNFY 426

Ş 427 HVNWGWGGVSDGFFRLDALNPSALGTGGGAGGFNGYQSAVVG 468

밁

354

RESULT 2 BPSOP

Streptopain (EC 3.4.22.10) precursor - Streptococcus pyogenes N;Alternate names: streptococcal cysteine proteinase; streptococcal peptidase A C;Species: Streptococcus pyogenes C;Date: 24-Apr-1984 #sequence_revision 07-Oct-1994 #text_change 07-Oct-1994 C;Accession: S07668; A00978 R;Yonaha, K.; Elliott, S.D.; Liu, T.Y.
J. Protein Chem. 1, 317-334, 1982

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exotoxin type A precursor (allele 1) - Streptococcus pyogenes phage T12

N;Alternate names: erythrogenic toxin; scarlet fever toxin
C;Species: Streptococcus pyogenes phage T12
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C;Date: 10-Sep-1999 #sequence of the type A streptococcal exotoxin (erythrogenic toxin infect. Immun. 52, 144-150, 1986
A;Title: Nucleotide sequence of the type A streptococcal exotoxin (erythrogenic toxin A;Reference number: S29659; MUID:86166804; PMID:3514452
A;Cross-references: GB:040453; EMBL:M19350; NID:91877426; PIDN:AAC48868.1; PID:918774:
A;Title: Characterization and clonal distribution of four alleles of the speA gene enc A;Rotesion: S.18782
A;Cross-reference number: S18782; MUID:92044323; PMID:1940804
A;Status: nucleic acid sequence not shown; translation not shown
A;Residues: 9-244 (MEL>
A;Cross-references: EMBL:X61560; NID:947287; PIDN:CAA43758.1; PID:947288
A;Cross-references: EMBL:X61560; NID:9487287; PIDN:CAA43758.1; PID:947288
A;Cros
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A; Molecule type: protein
A; Residues: 85-107,'r', 109-244,'N', 246-337 <TAI>
A; Residues: 85-107,'r', 109-244,'N', 246-337 <TAI>
A; Residues: 85-107,'r', 109-244,'N', 246-337 <TAI>
A; Residues: 85-107,'r', 109-244,'N', 246-337 <TAIP
C; Comment: This enzyme can remove the activation peptide from C; Seywords: cysteine proteinase; hydrolase; zymogen
C; Keywords: cysteine proteinase; hydrolase; zymogen
F; 1-84/Domain: activation peptide #status experimental <MAT>
F; 85-337/Product: streptopain #status experimental <MAT>
F; 131, 279/Active site: Cys, His #status experimental
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R; Tai, J.Y.; Kortt, A.A.; Liu, T.Y.; Elliott, S.D.
J. Biol. Chem. 251, 1955-1959, 1976
J. Title: Primary structure of streptococcal proteinase. A; Title en umber: A00978; MUID:76190087; PMID:1270417
A; Reference number: A00978
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A; Reference number:
A; Accession: S07668
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S18783
                          exotoxin type A precursor (allele 3) - N;Alternate names: scarlet fever toxin C;Species: Streptococcus pyogenes phage
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A; Nolecule type: DNA
A; Residues: 9-228 <NES>
A; Residues: 9-228 <NES>
A; Residues: 9-228 <NES>
A; Cross-references: EMBL:x61554; NID:g47327; PIDN:CAA43752.1; PID:g47328
A; Experimental source: Streptococcus pyogenes strain MGAS500 isolate New Zealand unas
A; Experimental source: Streptococcus pyogenes of the EMBL Data Library, September 199
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A; Residues: 9-244 <NEO>
A; Cross-references: EMBL:X61557; NID:g47319; PIDN:CAA43755.1; PID:g47320
A; Experimental source: Streptococcus pyogenes strain MGAS493 isolate France unassigne
A; Note: the nucleotide sequence was submitted to the EMBL Data Library, September 199
A; Accession: S18797
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A; Residues: 9-244 <NBA
A; Residues: 9-244 <NBA
A; Residues: 9-244 <NBA
A; Cross-references: EMBL: X61556; NID: 947291; PIDN: CAA43754.1; PID: 947292
A; Experimental source: Streptococcus pyogenes strain MGAS165 isolate Minnesota
A; Experimental source: Streptococcus pyogenes atrain MGAS165 isolate Minnesota
A; Experimental source: Streptococcus pyogenes atrain MGAS165 isolate Minnesota
A; Experimental source: Streptococcus pyogenes atrain MGAS165 isolate Minnesota
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A;Experimental source: Streptococcus pyogenes strain MGAS327 isolate Arizona unassign
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, September 199
A;Accession: S18796
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A;Experimental source: Streptococcus pyogenes strain MGAS167 isolate Texas unassigned A;Note: the nucleotide sequence was submitted to the EMBL Data Library, September 199 A;Accession: S18791
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A; Residues: 9-244 <NEZ>
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A;Residues: 9-244 (NEH)
A;Cross-references: EMBL:X61558; NID:g47321; PIDN:CAA43756.1; PID:g47322
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C;Superfamily: ente
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A; Residues: 9-244 <NEH>
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                                                                                                                                                                                                        VSIDGIQSLSFDIETNKKMYTAQELDYKVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKE
        SFWFDFFPEPEFTQSKYLMIYKDNETLDSNTSQIEVYLTTK
                                                                                                                                                              VSIDGIOSLSFDIETNKKMYTAQELDYKVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKE
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A;Cross-references: EMBL:X61571; NID:g47323; PIDN:CAA43769.1; PID:g47324
A;Experimental source: strain MGAS495 isolate Germany unassigned phage
A;Note: the nucleotide sequence was submitted to the EMBL Data Library,
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A;Residues: 1-236 <NEY>
A;Residues: 1-236 <NEY>
A;Cross-references: EMBL:X61572; NID:g47333; PIDN:CAA43770.1; PID:g47334
A;Experimental source: strain MGAS624 isolate Germany unassigned phage
A;Note: the nuclectide sequence was submitted to the EMBL Data Library,
A;Accession: S18798
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A:Experimental source: strain MGAS485 isolate Yugoslavia unassigned phag
A:Note: the nucleotide sequence was submitted to the EMBL Data Library,
A:Accession: S18794
A:Status: nucleic acid sequence not shown; translation not shown
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A;Experimental source: strain MGAS491 isolate United Kingdom unassigned
A;Note: the nucleotide sequence was submitted to the EMBL Data Library,
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Exp. Med. 174, 1271-1274, 1991
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Pred. No. 9.3
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A;Experimental source: strain MGAS496 isolate Germany unassigned phage
A;Note: the nucleotide sequence was submitted to the EMBL Data Library,
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A; Residues: 1-236 <NEH>
A; Cross-references: EMBL:X61566; NID:g47317; PIDN:CAA43764.1; PID:g47318
A; Experimental source: strain MGA5492 isolate United Kingdom unassigned |
A; Note: the nucleotide sequence was submitted to the EMBL Data Library, |
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C;Species: Streptococcus pyogenes phage
A;Variety: strain MGAS250 isolate California; strain MGAS251 isolate California;
isolate United Kingdom; strain MGAS496 isolate Germany
C;Date: 29-Jan-1993 #sequence_revision 29-Jan-1993 #text_change 16-Jul-1999
C;Date: 29-Jan-1993 #sequence_revision 29-Jan-1993 #text_change 16-Jul-1999
C;Accession: S18786; S18787; S18799; S18792; S18799; S18799; S18790; S1
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A; Residues: 1-236 <NES>
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A;Experimental source: strain MGAS250 isolate California unassigned phage
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, Sc
A;Accession: S18787
A;Status: nucleic acid sequence not shown; translation not shown
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A;Residues: 1-236 <NEO>
A;Cross-references: EMBL:X61565; NID:g47311; PIDN:CAA43763.1; PID:g47312
A;Experimental source: strain MGA6480 isolate Yugoslavia unassigned phage
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, (
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A;Experimental source: strain MGAS285 isolate Colorado unassigned phage
A;Note: the nucleotide sequence was submitted to the EMBL Data Library,
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A;Experimental source: strain MGAS256 isolate California unassigned phaga;
A;Note: the nucleotide sequence was submitted to the EMBL Data Library,
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A; Residues: 1-236 <NEZ>
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A; Residues: 1-236 < NEA>
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streptococcal pyrogenic exotoxin type A precursor - Streptococcu N;Alternate names: scarlet fever toxin; SPE type A (speA) C;Species: Streptococcus sp. C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change C;Accession: A26152 R;Johnson, L.P.; L'Italien, J.J.; Schlievert, P.M. Mol. Gen. Genef: 203, 354-356, 1986 A;Title: Streptococcal pyrogenic exotoxin type A (scarlet fever A;Reference number: A26152; MUID:86284313; PMID:3526093 A;Accession: A26152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                J. Exp. Med. 174, 1271-1274, 1991
A;Title: Characterization and clon
A;Reference number: S18782; MUID:9
A;Accession: S18789
A;Status: nucleic acid sequence no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Residues: 1-236 <NEL>
A;Cross references: EMBL;X61573; NID:g47303; PIDN:CAA43771.1; PID:g47304
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N;Alternate names: scarlet fever toxin
C;Specles: Streptococcus pyogenes
A;Varlety: strain MGAS262 isolate California
C;Date: 29-Jan-1993 #sequence_revision 29-Jan-1993 #text_change 16-Jul-1999
C;Accession: S18789
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exotoxin A precursor (allele 4) - Streptococcus
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A26152
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C;Keywords: exotoxin
F;1-22/Domain: signal seque
F;23-236/Product: exotoxin
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Best Local S
Matches 186
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:3-236/Product: exotoxin A (fragment) #status predicted 
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Similarity 88.2%; Pred. No. 1.5
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ELKNQEMATLFKDKNIDIYGVEYYHLCYLCENAERSACI-GGVTNREGNHLEIPKKIVVK
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                             precursor - Streptococcus
SPE type A (speA)
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                                                                                                                    R; Huang, I.Y; Bergdoll, M.S.
J. Biol. Chem. 245, 3511-3517, 1970
A; Title: The primary structure of staphylococcal enterotoxin B.
A; Title: The primary structure of staphylococcal enterotoxin B.
A; Contents: annotation; chymotryptic peptides
R; Huang, I.Y.; Bergdoll, M.S.
R; Huang, I.Y.; Bergdoll, M.S.
R; Huang, I.Y.; Bergdoll, M.S.
A; Title: The primary structure of staphylococcal enterotoxin B.
A; Title: The primary structure of staphylococcal enterotoxin B.
A; Reference number: A92063; MUID:1007900; PMID:5470819
A; Contents: annotation; tryptic peptides
R; Schantz, E.J.; Roessler, W.G.; Wagman, J.; Spero, L.; Dunnery,
Biochemistry 4, 1011-1016, 1965
A; Title: Purification of staphylococcal enterotoxin B.
A; Tother purification of staphylococcal enterotoxin B.
A; Contents: annotation; biological source of protein
R; Alakhov, V.Y.; Klinsky, E.Y.; Kolosov, M.I.; Maurer-Fogy, I.; R; Alakhov, V.Y.; Klinsky, E.Y.; Kolosov, M.I.; Maurer-Fogy, I.; Biochem. 209, 823-828, 1992
A; Title: Identification of functionally active fragments of staph; A; Accession: S27240; MUID:93049338; PMID:1425690
A; Accession: S27240; MUID:93049338; PMID:1425690
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                      A; Molecule type: protein
A; Residues: 28-42;128-148 <ALA>
C; Superfamily: enterotoxin B
C; Keywords: enterotoxin; extracellular
F; 1-27/Domain: signal sequence *status
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Dunnery, D.A.; Bergdoll,

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staphylococcal

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A; Residues: 1-250 <JOH>
C; Superfamily: enterotoxin
C; Keywords: exotoxin
                                                                                                                                                                                                                                                                                                           C;Species: Staphylococcus aurėus C;Date: 24-Apr-1984 #sequence_revision C;Accession: S27360; A92065; S27240; ACR;Jones, C.L.; Khan, S.A. J. Bacteriol. 166, 29-33, 1986
                                                          R; Huang, I.Y.; Bergdoll, M.S.
J. Biol. Chem. 245, 3518-3525, 1970
A;Title: The primary structure of staphylococcal enterotoxin A;Reference number: A92065; MUID:71007902; PMID:5470821
A;Accession: A92065
                                                                                                                                                                                                                                                 A;Title: Nucleotide sequence of the enterotoxin B gene from Staphylococcus aureus A;Reference number: S27360; MUID:86168029; PMID:3957869
A;Accession: S27360
A; Molecule type: protein
A; Residues: 28-55, 'NND', 59-68, 'NE', 71, 'FDLIYL', 78-117, 119-127, 'N', 129, 'D'
A; Experimental source: strain S-6
                                                                                                                                                                                                            A; Molecule type: DNA
A; Residues: 1-266 < JON>
                                                                                                                                                              A; Experimental source: strain S6
                                                                                                                                                                                      A;Cross-references: EMBL:M11118; NID:g152999; PIDN:AAA88550.1; PID:g153000
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185; Conser
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DGIQSLSFDIEQIKN-GNCSRISYTVRKYLTDNKQLYTNGPSKYETGYIKFIPKNKESFW 212
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Pred. No. 2.3e-54;
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A01815
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enterotoxin C-2 precursor - Staphylococcus aureus WyAlternate names: enterotoxin C-3 precursor C; Species: Staphylococcus aureus C; Pate: 10-Nov-1992 *sequence_revision 10-Nov-1992 *text_c C; Accession: A60114; B60114; A33866 R; Bohach, G.A.; Schlievert, P.M.
Infect. Immun. 57, 2249-2252, 1989
A; Title: Conservation of the biologically active portions A; Reference number: A60114; MUID:89277549; PMID:2543637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          enterotoxin C3 - Staphylococcus aureus
c;Specles: Staphylococcus aureus
C;Date: 19-Mar-1997 #sequence_revision 19-Mar-1997 #text_change 16-Jul-1999
C;Accession: S11885
R;Hovde, C.J.; Hackett, S.P.; Bohach, G.A.
                                                                                                                                                                  RESULT
A60114
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A;Title: Nucleotide sequence of the staphylococcal enterotoxin A;Reference number: S11885; MUID:90220508; PMID:2325627
A;Accession: S11885
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A; Residues: 1-266 <HOV>
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Best Local :
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                                                                                                                                                                                                                                       KLKTELKNQEMATLFKDKNIDIYGVEYYHLCYLCE----NAERSACIGGVTNREGNH 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                              QPDPMPDDLHKSSEFTGTMGNMKYLYDDHYVSATKVKSVDKFLAHDLIYNISDKKLKNYD 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QQDPDPSQLHRSS-LVKNLQNIYFLYEGDPVTHENVKSVDQLRSHDLIYNVSG---PNYD 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GNQLDKYRSITVRVFEDGKNLLSFDVQTNKKKVTAQELDYLTRHYLVKNKKLYEFNNSPY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NVRVEFKNKDLADKYKDKYVDVFGANYYYQCYFSKKTNDINSHQTDKRKTCMYGGVTEHN 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KLKTELKNQEMATLFKDKNIDIYGVEYYHLCYLCENA-----ERSACI-GGVTNRE
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                                                                                                                                                                                                                                                                                                                 FDNGNLQNVLVRVYENKRNTISFEVQTDKKSVTAQELDIKARNFLINKKNLYEFNSSPYE
                                                                                                                                                                                                                                                                                                                                                                                        KYKTELLNEDLAKKYKDEVYDVYGSNYYVNCYFSSKDNVGKVTGGKTCMYGGITKHEGNH
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Pred. No. 1.9e-26;
13; Mismatches 70;
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Pred. No. 2.8e-28;
9; Mismatches, 67;
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                                                                                           #text_change
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                      of staphylococcal enterotoxins
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C
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                                                                                             16-Jul-1999
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A;Title: Nucleotide sequence of the type C-3 staphylococcal enterotoxin gene suggests A;Reference number: A33866; MUID:89327174; pMID:2473979
A;Recession: A33866
                                                                                                                                                                                                                                                                                                                               R;Bohach, G.A.; Schlievert, P.M.
Mol. Gen. Genet. 209, 15-20, 1987
A;Title: Nucleotide sequence of the staphylococcal enterotoxin Cl
A;Reference number: S06356; MUID:88038352; PMID:2823067
A;Accession: S06356
                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Species: Staphylococcus aureus
C;Date: 15-Nov-1984 #sequence_revision 05-Jan-1996 #text_change 18-Jun-1999
C;Accession: S06356: A01816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Superfamily: enterotoxin B F;1-27/Domain: signal sequence *status predicted F;28-266/Product: enterotoxin C-2 *status predict
                                                                                                                                                                        R;Schmidt, J.J.; Spero, L.
J. Biol. Chem. 258, 6300-6306,
A;Title: The complete amino ac.
A;Reference number: A01816; MU
A;Accession: A01816
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A; Residues: 1-26
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A;Status: not compared with conceptual translation
F;28-266/Product: er
F;120-137/Disulfide
                    F;1-27/Domain: signal sequence #status predicted <SIG>F;28-266/Product: enterotoxin C-1 #status experimental
                                                      C; Superfamily: enteroto: C; Keywords: enterotoxin
                                                                                                                    C; Genetics:
                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-266 <BOH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       enterotoxin
C; Species: 9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: DNA
A; Residues: 1-266 <COU>
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                                                                                                 A;Gene: entCl.
                                                                                                                                      A;Molecule type: protein
A;Residues: 28-75,'IL',78-176,'N',178-266 <SCH)
                                                                                                                                                      A; Molecule type:
                                                                                                                                                                                                                                                                        A;Cross-references: EMBL:X05815; NID:g46566; PIDN:CAA29260.1;
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGYIKFIPKNKESFWFDFFPEP--EFTQSKYLMIYKDNETLDS-NTQIEVYLTTK
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                                                                               enterotoxin
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de bonds: #st
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    #status
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Query

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RESULT 13
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C; Accession: G89968
R; Kuroda, M.; Ohta, T.; Uchlyama, I.; Baba, T.; Yuzawa, H.; Kobayashi, I.; Cui, ma, A.; Mizutani-Ui, Y.; Kobayashi, N.; Sawano, T.; Inoue, R.; Kaito, C.; Sekimi C.; Shiba, T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K.
                                                                            R;Madden, T.E.;/Clark, V.L.; Kuramitsu, H.K.
Infect. Immun; 63, 238-247, 1995
A;Title: Révised sequence of the Porphyromonas
A;Reference number: Z17199; MUID:95105001; PMII
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C;Superfamily:
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A;Residues: 1-256 <KKR>
A;Cross-references: GB:BA000018; PID:g13701617; PIDN:BAB42910.1; GSPDB:GN00149
A;Experimental source: strain N315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C.; Shiba, T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K. Lancet 357, 1225-1240, 2001
A;Title: Whole genome sequencing of meticillin-resistant Stapylococcus A;Reference number: A89758; MUID:21311952; PMID:11418146
A;Accession: G89968
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43.3%; Pred. No. 6.1e-22;
ative 37; Mismatches 79;
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4; Mismatches 70;
     PMID:7806362
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A;Title: Whole genome sequencing of meticillin-resistant Stapylococcus aureus.
A;Reference number: A89758; MUID:21311952; PMID:11418146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Species: Staphylococcus aureus
C;Date: 10-May-2001 #sequence_revision 10-May-2001 #text_change 22-Oct-2001
C;Accession: A89989
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A;Status: preliminary; translated
A;Status: DNA
DNA
A;Residues: 1-886 <MAD>
A;Cross-references: EMBL:S75942; N
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: GB:BA000018; PID:g13701619; PIDN:BAB42912.1; GSPDB:GN00149
A;Experimental source: strain N315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-136 < KUR>
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C;Keywords:
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Matches 64
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                                                                                                                          207 LDSNT-QIEVYLTTK 220
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39.0%; Pred. No. 1e-19;
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                                                                                                                                                                                                                                                                                                                                                                                        Score 303.5; DB 2
Pred. No. 3.9e-13;
3; Mismatches 39
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                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2; Length 886;
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                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
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                                                                                                                                                                                                                                                                                                                                                                                        9;
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Gaps

61

121

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Search completed: June 23, 2003, 16:15:55 Job time: 35.4979 secs
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R;Bayles, K.W.; Iandolo, J.J.
J. Bacteriol. 171, 4799-4806, 1989
A;Fitle: Genetic and molecular analyses of the gene encoding staphylococcal enterotoxin A;Reference number: A33953; MUID:89359112; PMID:2549000
A;Accession: A33953
A;Status: preliminary
A;Molecula type: DNA
A;Residues: 1-258 <BAY>
A;Residues: 1-258 <BAY>
A;Cross-references: GB:M28521; NID:g1492109; PIDN:AAB06195.1; PID:g758691
C;Superfamily: enterotoxin B
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enterotoxin D precursor - Staphylococcus aureus
C;Species: Staphylococcus aureus
C;Date: 09-Mar_1990 #sequence_revision 09-Mar-1990 #text_change 15-Oct-1999
                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                   / Match 11.8%; Score 295.5; DB 2; Length 258; Local Similarity 35.0%; Pred. No. 3.3e-12; hes 79; Conservative 44; Mismatches 86; Indels 17,
                                                                   213 SSDGSKYSYDLFDVKGDFPEKQLRIYSDNKTLSTEHLHIDIYLYEK 258
                                                                                            176 PKNKESFWEDEFEPEFETQSKYLMIYKDNETLDS-NTQIEVYLTTK 220
                                                                                                                                           94 INFNSKEMAQHFKSKNVDVYPIRYSINCYGGE-IDRTACTYGGVTPHEGNKLKERKKIPI 152
                                                                                                                                                                                                                                                  36 ELHKKSELSSTALNNMKHSY--ADKNPIIGENKSTGDQFLENTLLYKKFFTDLINFEDLL 93
                                                                                                                                                                                                                                                                                                                              17; Gaps
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